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BUREAU OF SURVEYS

ANNUAL REPORT

PHILADELPHIA

1911

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ANNUAL REPORT

OF THE

DIRECTOR OF THE

Department of Public Works

AND OF THE

CHIEF OF THE

BUREAU OF SURVEYS

FOR THE

YEAR ENDING DECEMBER 31, 1911

ISSUED BY THE CITY OF PHILADELPHIA, 1912

PHILADELPHIA
DUNLAP PRINTING CO., 1315-29 CHERRY STREET
1912

ANNUAL REPORT

OF TH

DEPARTMENT OF PUBLIC WORKS

FOR THE

YEAR ENDING DECEMBER 31, 1911

TWENTY-FIFTH ANNUAL REPORT

OF THE

DEPARTMENT OF PUBLIC WORKS

Philadelphia, February 20, 1912.

HON. RUDOLPH BLANKENBURG,
Mayor of the City of Philadelphia.

MY DEAR SIR:—In compliance with the Act of Assembly creating the Department of Public Works we have the honor to submit herewith the report of the operations of this Department for the year 1911.

Inasmuch as the report is filed three weeks after this Administration went into office and the work was done almost exclusively by my predecessors, it does not seem necessary for me to make any comments on work in which the present Administration had no part.

For the use of those officials in other cities who watch with interest the operations of this Department, and for the purpose of complying with the Act above noted, I have had the following extracts made from the reports of the several Chiefs comprising the Department of Public Works.

BUREAU OF GAS.

The amount appropriated for the use of the Bureau of Gas, $10,000, was expended during the year.

Under the terms of the lease of the Philadelphia Gas Works to the United Gas Improvement Company, the

263319

latter was compelled to pay into the City Treasury the sum of $10,000 annually for salaries and expenses of the Bureau.

The main duties of the Bureau are to see that the quality of gas and its illuminating value are maintained, and to make tests of such meters as consumers consider are registering fast.

The chemical composition of gas during 1911 is indicated by the following analyses:

	Per cent.
Carbon dioxide	2.60
Illuminants	11.56
Carbon mon-oxide	26.30
Hydrogen	36.05
Methane	21.45
Nitrogen	1.20
Oxygen	0.84
	100.00

There are about 3,000 tests made annually to ascertain the quality of the gas supplied.

The following table gives the monthly average candle power of the gas furnishel to the consumers:

January	22.60
February	22.59
March	22.66
April	22.68
May	22.77
June	22.62
July	22.65
August	22.59
September	22.79
October	22.63
November	22.59
December	22.68
Maximum monthly average	22.79
Minimum monthly average	22.59

Bureau of Highways.

There were 22 miles of streets opened and graded during the year by the City, and by builders without expense to the City. There were 18.61 miles of new streets paved with modern materials and three miles of old cobble and rubble paved streets were repaved with improved material.

In August, 1911, bids were received for macadamizing roads aggregating $200,000, but owing to the threatened litigation by the Taxpayers' Committee it was not until very late in the season that the Department was able to award contracts, and therefore very little work was done in this particular line during 1911. It is intended to resurface these roads on the advent of good weather.

In the resurfacing which will be done under these contracts, we have provided for using different characters of asphaltic oils so as to prevent the dust nuisance and the disintegrating of the macadam. By using different kinds of oil preparations we will be able to ascertain which gives the greatest satisfaction, and it will demonstrate their comparative fitness for the purpose.

Councils made no appropriation for the maintenance of unpaved and macadamized public highways during the year 1911, and the only attention given these roads was what was done by the emergency repair corps of the Bureau of Highways, which was of a superficial character.

Councils made no appropriation for specific work on these roads during the year 1912, although specifications were prepared and bids received for doing this work during the current year which made ample provision for restoring the dirt and macadam roads to a degree of efficiency. I have forwarded a communication to Councils asking for an appropriation to carry this work into effect.

During the year there were 560,189 square yards of repairs made to all classes of streets within the City by the City's emergency repair corps. This method of making repairs was an innovation, as it was formerly done under the contract system.

Repairs to sewers and bridges were made by the repair corps of the Bureau of Highways, with the exception of a few minor cases where the work was done by contract.

Work on the Northeast Boulevard progressed during the year 1911, between Second and Rhawn streets, but owing to injunction proceedings to test the legality of the supplemental contract the work has been discontinued.

The completion of the Southern Boulevard (South Broad Street) has been delayed pending the decision as to the permanent location of the trolley tracks.

The report of the Assistant Chief of the Bureau in charge of the Division of Street Cleaning gives a resume of the work performed in the cleaning of streets, etc.

Bureau of Lighting.

Under the lease of the Philadelphia Gas Works this Bureau has the general supervision of all gas lamps in so far as relates to erection, discontinuance and relocation. Under this lease the United Gas Improvement Company is required to erect 300 new gas lamps each year. This is totally insufficient to meet the requirements in newly developed territory. This condition has been prevalent ever since 1898.

The Bureau's report contains a very strong recommendation to change the character of the open flame gas lamps to the improved incandescent system. Were this done, it would provide us with a surplus of about 5,000 lamps, which, used judiciously, could provide ample lighting fa-

cilities for a number of years and also give a modern system such as is used by many up-to-date communities.

The lighting of gasoline lamps also comes under the supervision of this Bureau.

Bureau of Surveys.

The appropriation for main sewers came very late in the year 1911, but it was practicable to place most of them under contract and a portion of them under construction before the close of the year. The importance of making liberal appropriations for work of this character cannot be urged too strongly on the legislative branch of the City Government, for the reason that this class of work precedes and also induces all development of outlying territory, which yields, after development, such handsome returns to the City through taxation. There has been a large falling off in construction of main sewers, due to insufficient appropriations, for several years past.

The sewer construction during the year amounted to 24.527 miles, divided as follows:

	Miles.
Main sewers	1.381
Branch sewers	12.332
Private sewers	8.384
Grade crossing sewers	1.096
Boulevard sewers	1.264
Widening Delaware avenue	.039
Sewers in connection with bridges	.031

The work of the testing laboratory attached to the Bureau of Surveys has been carried on along the usual lines, comprising investigations as to the comparative merits of different materials which enter into the various public works. Considerable experimenting has also been done for the purpose of standardizing specifications for these materials. The City's engineers under whose direc-

tion these experiments are being carried on have been in frequent conference with engineers of other cities and of the United States Government in this regard.

Progress has been made during the year in the extension of the intercepting sewer systems which are built along the banks of the larger streams throughout the City for the purpose of lessening pollution and for the protection of the City's water supply.

In the study of the comprehensive plan for the development of the City, probably the largest single project is that for the improvement of the sewer system and the disposal of the sewage of the City in a sanitary manner. Studies and experiments on this subject have been in progress for several years.

The work which has been carried on during the past year comprised careful studies as to population, present and future; experiments as to the amount of sewage to be disposed of; compiling of data from adjacent American and also foreign cities upon various methods of disposal; preparation of diagrams and plans for the complete system and of a report which is approaching completion upon the whole subject.

The solution of this problem by the City of Philadelphia, as well as similar problems by other cities of tho State, is placed upon them by the State Commissioner of Health in carrying out the Acts of Assembly providing for the betterment of public health and the preservation of the waters of the State.

There were ten bridges completed during the year 1911. The most important was the Passyunk avenue bridge over the Schuylkill river. Another important work which is now under way is the widening of the present Chestnut street bridge.

On January 1, 1911, two tracks were placed in service

on the elevated structure of the Philadelphia, Germantown and Norristown Railroad along the line of Ninth street, between Spring Garden street and Wayne Junction, thus removing a great many dangerous grade crossings. Durthe course of construction there was no interference with the regular train service which, when it is taken into consideration amounts to about 500 train movements daily, is a wonderful performance, and was so attested by the Board of Directors of the Philadelphia and Reading Railway Company.

Work is now in progress along the line of the Richmond Branch of the Philadelphia and Reading Railway Company of the same character.

It is worthy of note that the first exhibit of comprehensive city plans, together with a Convention of City Planning experts, was held in this City from May 15th to June 15, 1911. The exhibit brought together many projects from both foreign and domestic cities, including all the other matters allied with this subject, such as better housing facilities, suburban gardens, architectural improvements, subways, port developments, parkways and parks, street widening and extension and artistic treatment of civic centers.

Bureau of Water.

The total expenditures of the Bureau of Water for 1911 were $1,797,885.97, of which $1,415,973.61 was for maintenance and $381,912.36 for improvements. In addition to the above the Department of Supplies expended $803,152.84 for materials and supplies for the Bureau.

There was a decrease in the operating expenses for items covered by direct appropriation to the Bureau of $61,884.64, and also a decrease in materials furnished by the Department of Supplies of $79,853.91, making a total

decrease in operating expenses of $141,738.55. The receipts of the Bureau during the same period were $4,841,882.97, an increase of $265,525.32 over the year 1910.

The consumption of water during the year was 116,044,866,000 gallons, an increase over 1910 of 1,313,966,000 gallons. The average daily consumption was 317,930,000 gallons and the per capita consumption per day averaged 201.6 gallons, a decrease of 1.6 gallons.

The Queen Lane Filters, while not entirely completed, were put in service November 29, 1911, and have been successfully operating since that date. The average quantity filtered is about 47,000,000 gallons per day.

The daily average quantity filtered at the other filter stations was as follows:

	Gallons.
Torresdale	208,350,000
Belmont	39,690,000
Upper Roxborough	13,000,000
Lower Roxborough	10,056,000

which, together with the Queen Lane filters gave an average daily total of 317,000,000 gallons of water filtered every day.

The total cost of operating the filters during 1911, including the Torresdale pumping station and the pumpage from the upper Roxboro reservoir to the filters, was at the average rate of $3.90 per million gallons, a reduction of 15 cents over 1910.

During the year 1911 there were 1,382 cases of typhoid fever, of which 223 resulted in death. This averaged 14.1 deaths in each 100,000 population, the lowest rate yet attained since the induction of filtration.

Unless there is a marked reduction in the waste of water the Bureau of Water will not be able to furnish the citizens with a satisfactory supply. For the past four years the

Bureau has been operating at its maximum capacity and during this time the service where the pressure is below the average, has been extending. The Bureau's plant is being worked to its maximum capacity, as neither the filters, the pumping machinery nor the mains can do more than is being done at the present moment.

Philadelphia, to-day, is the only city in the United States that forbids the use of meters, and from a study of the results obtained from other cities that have a reasonable number of their water connections metered, there is hardly a doubt that if meters were placed on those properties wherein waste is detected, the consumption would be so reduced that a good supply could be maintained in all sections of the City.

West Philadelphia has outgrown its water pipe system and it is essential that large new mains should be laid from the pumping station to the filter plant, thence to George's Hill reservoir, and from thence to the southern section of this district. The service has been poor for the last three years. The Bureau is obliged to throttle the discharge valves from the reservoir during the night in order to store enough water to supply the daylight demand. It is estimated these improvements will cost $600,000.

The total coal consumption during the year was 201,452 tons, at a cost of $570,483.08, a decrease over 1910 of 13,327 tons, or $59,639.87. Notwithstanding the lower coal consumption there were pumped 415,411,000 gallons more water than in 1910.

The pumping machinery and boilers are in good condition and largely account for the decreased amount of coal used during the past year, with the exception of the boilers at the Queen Lane Station. These have been condemned by the Bureau of Boiler Inspection and should be

replaced by water tube boilers at the earliest possible moment. Approximate cost $45,000.

There were laid during the year 26.63 miles of new pipe. Of this amount 6,986 feet were laid by private contract. Two hundred and eighty-one fire hydrants were placed.

The total number of dwellings furnished with water is 324,727, an increase of 9,401 during the year.

Director's Office.

During the year the official photographer connected with this office carried on this class of work in a satisfactory manner. The total cost for salaries and supplies was $5,162.97, which was a marked saving over what it would have cost had the work been done by outside contract.

Respectfully submitted,

M. L. COOKE,

Director.

ANNUAL REPORT

OF THE

BUREAU OF SURVEYS

FOR THE

YEAR ENDING DECEMBER 31, 1911

DEPARTMENT OF PUBLIC WORKS

BUREAU OF SURVEYS

OFFICERS, 1911

Chief Engineer,
GEORGE S. WEBSTER.

Principal Assistant Engineer,
GEORGE E. DATESMAN.

Chief and Recording Clerk—Joseph R. Scott.
Sewer Registrar—William Calvert.
Assistant Recording Clerk—Robert McFadden.

District Surveyors and Regulators,

1st—John M. Nobre.
2d—R. A. McFadden.
3d—W. C. Cranmer.
4th—Frits Bloch.
5th—Walter Brinton.
6th—Joseph Mercer.
7th—W. K. Carlile.
8th—C. A. Sundstrom.
9th—J. C. Wagner.
10th—John H. Webster, Jr.
11th—Joseph Johnson.
12th—J. H. Gillingham.
13th—H. M. Fuller.
14th—C. B. Webster.

ENGINEERING DIVISION

SEWERS (Construction).

Assistant Engineer—Charles H. Ott.

Sewer Clerk—John B. Megonigal.

BRIDGES.

Assistant Engineer—Henry H. Quimby.

Chief Draughtsman—L. F. Wehmeyer.

SEWERS (Plans).

Assistant Engineer—Charles H. Frommer.

Chief Draughtsman—Charles Jacobson.

RIVER FRONT IMPROVEMENTS.

Assistant Engineer—Norman L. Stamm.
(until May 1st).

GENERAL PLANS.

Assistant Engineer—Benjamin A. Haldeman.

Chief Draughtsman—Edwin M. Evans.

GRADE CROSSINGS.

Assistant Engineer—James W. Phillips.

SPECIAL CORPS.

Assistant Engineer—N. J. Witmer.

TESTING LABORATORY.

Assistant Engineer—W. P. Taylor.

SEWAGE DISPOSAL DIVISION.

Assistant Engineer—W. L. Stevenson.

REGISTRY DIVISION

Registrar—John W. Frazier.

Assistant Registrar and Search Clerk—Charles W. Wagner.

Registry Clerk—George A. Jelden.

ANNUAL REPORT

OF THE

BUREAU OF SURVEYS

FOR THE YEAR 1911

MR. MORRIS L. COOKE,
Director, Department of Public Works.

DEAR SIR:—The annual report of the operations of the Bureau of Surveys for the year ending December 31, 1911, is respectfully submitted.

The appropriations and expenditures were as follows:

Appropriation for 1911		$321,380 00
Balance available from former years		3,174,652 41
Additional appropriations and transfers		1,697,147 63
Expenditures	$2,350,763 78	
Balance available in 1912	2,828,309 83	
Balance merged	10,656 43	
Transfers from	3,450 00	
		$5,193,180 04

The receipts were:

In general office		$34,061 27
In registry division		1,312 75
Total receipts, district surveyors		115,792 67
		$151,166 69

Board of Surveyors and Regulators.

During the year the Board held twenty-two stated meetings for the transaction of general business, and ten special meetings for the purpose of transacting urgent business or

of views of localities where changes of City plans are in contemplation.

The Board held Road Day hearings on April 17th, July 17th and October 2d, when it received testimony from property owners interested in proposed changes of City plans. Ninety-six plans were heard, and the evidence presented was spread upon the minutes. After these public harings, sixty-four plans were finally confirmed and one rejected. After careful consideration, nineteen plans were approved, which were submitted by passenger railway companies, showing changes in locations of rails and curves, style of rails, tracks, etc.

Four hundred and seventeen ordinances and petitions for the construction of main and branch sewers, the placing of new streets and avenues upon the City plan, the striking from City plan and vacation of streets and roads, the revision of lines and grades and the establishment of lines and grades in outlying sections of the City, were received, referred to committees for consideration and report, and after action by the Board were returned to Councils.

One hundred and twenty-one deeds of dedication and releases of property owners for the beds of streets or releasing rights for damages by reason of changes in the City plan were approved by the Board, and were ordered to be recorded.

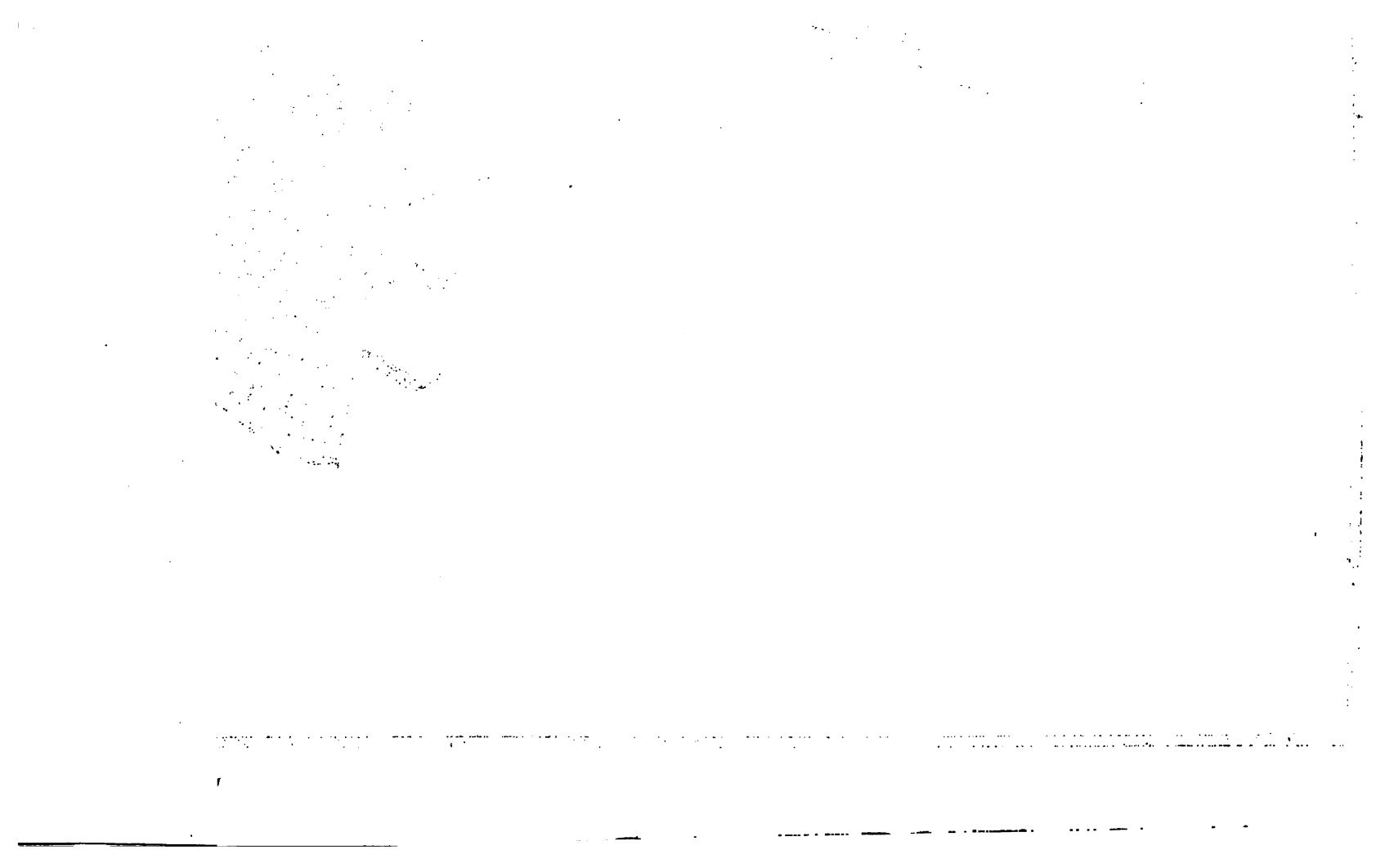
The work above described comprises the work accomplished at the sessions only.

The work performed in the survey districts varies exceedingly, and embraces the preparation of plans, estimates and making of bills for all kinds of municipal street improvements.

Among other duties are included the preparation of City plans, plans for the use of Courts and Road Juries,

...ested, and that future reports may reach you witho... delay.

GEORGE S. WEBSTER
Chief Engineer and Surveyor.



furnishing lines and grades for water pipe, gas mains, sewers, street paving and other municipal structures, the giving of lines and preparation of plans for street railway tracks, curves and turnouts, estimates of the cost of parkways, park improvement and street openings, preparation of lien descriptions, and the preparation of assessment bills for paving, sewers and water pipe.

The work done for various Departments and Bureaus of the City in 1911 by the district surveyors amounted to $190,812.28, the combined cash receipts and credits for work of this character and for work done for contractors and private individuals being $79,486.25 in excess of the total expenses of the fourteen survey districts.

Main Sewers.

It may safely be stated that in the development of a great city, no one item of expenditure for public improvements is more essential than that providing adequately for main sewer construction, upon which must depend other street improvements necessary for the proper development of real estate, resulting in the increase of taxable values.

This statement is made with no disparagement to other very necessary municipal needs of equal importance.

The appropriations which became available for the construction of main sewers were as follows:

From loan of April 21, 1911, and authorized by ordinance of May 25, 1911	$125,000
From loan of June 19, 1911, and authorized by ordinance of July 21, 1911	160,000
For the reconstruction of the Cohocksink sewer from loan of June 19, 1911, and authorized by ordinance of July 21, 1911	50,000
For the reconstruction and relief of the Cohocksink sewer, by ordinance of December 30, 1907	1,500
Total	$336,500

Of the first appropriation of $125,000 the sum of $117,000 was apportioned among five sewers.

The remaining $8,000 was appropriated for the extension of the sewer in Hunting Park avenue from the present terminus west of Twenty-eighth street to McMichael street. This is not to be used until Hunting Park avenue has been graded to the confirmed grade.

Of the second appropriation of $160,000 the sum of $140,000 was apportioned among seven sewers.

The remaining $20,000 was appropriated for the extension of the Rock Run sewer in Tenth street from Fisher avenue to Eleventh street, and in Eleventh street from Tenth street to Tabor street. This cannot be used until the outlet (now under construction) has been completed in Fisher avenue from east of Sixth street to Tenth street.

A detailed statement of the work on the above main sewers, together with those which had been authorized and placed under contract during 1909 and 1910 and carried on during the current year, where the sewers are not included under other headings, is as follows:

Fifty-seventh street between Susquehanna avenue and Jefferson street, and across private property to existing sewer in Lancaster turnpike road about fifty feet south of Jefferson street. The sum of $20,000 was authorized by ordinance of May 25, 1911, loan of April 21, 1911. Bids were received on schedule of August 15, 1911. The contractor was notified to proceed with the construction on September 8, 1911. Length and sizes built 713.67 feet of 6 feet 6 inches diameter, and one junction chamber 34.78 feet long. There has been paid to the contractor on account the sum of $12,240. Work is in progress. Contractor, J. Joseph McHugh. Inspector, J. J. McVeigh.

Fifty-seventh street extension, from north of Lebanon avenue to Susquehanna avenue. The sum of $9,000 was

authorized by ordinance of July 21, 1911, loan of June 19, 1911. Bids were received on schedule of November 28, 1911. The contractor was notified to proceed with the construction on December 1, 1911. Work has not as yet been started. Contractor, Ryan & Reilly.

Luzerne street from Tenth street to Old York road. The sum of $7,000 was authorized by ordinance of July 21, 1911, loan of June 19, 1911. Bids were received on schedule of November 28, 1911. The contractor was notified to proceed with the construction on December 21, 1911. Work has not as yet been started. Contractor, Frederick T. Buckius.

Rock Run sewer extension in Fisher avenue from present terminus east of Sixth street to Tenth street. The sum of $23,000 was authorized by ordinance of May 25, 1911, loan of April 21, 1911. Bids were received on schedule of August 15, 1911. The contractor was notified to proceed with the construction on September 23, 1911. Length and size built, 68.66 feet of 12 feet diameter sewer, 86 feet of 6 feet diameter sewer, and a junction chamber 34.16 feet long. The contractor has been paid on account during the year the sum of $3,422.40. Work is in active progress. Contractor, Patrick Durkin. Inspector, W. E. Haley.

Rock Run sewer extension in Sixth street from Fisher avenue to Brookdale street, and in Brookdale street from Sixth street to Seventh street. The sum of $35,000 was authorized by ordinance of July 21, 1911, loan of June 19, 1911. Bids were received on schedule of November 28, 1911. The contractor was notified to proceed with the construction on December 14, 1911. Work has not as yet been started. Contractor, David Peoples.

Third street from Ashdale street to Tabor street. The sum of $21,000 was authorized by ordinance of June 20, 1908, loan of April 15, 1908. Bids were received on schedule of August 24, 1909. The contractor was notified to proceed with the construction on September 30, 1909. Length and size built, 16 feet of 4 feet 9 inches diameter sewer, 309 feet of 4 feet 6 inches diameter sewer. The contractor was paid on current and final estimates during the year the sum of $6,031.01. Total cost of the work, $20,815.01. Final estimate paid August 22, 1911. Contractor, Michael McNulty. Inspectors, John Doyle and John Barlow.

Intercepting Systems.

Under the foregoing subdivision of the heading, Main Sewers, there are placed those sewers which serve a specific purpose, that of removing pollution from the creeks or rivers within the City.

Sewers of this character are distinguished from the combined system, either in that the system consists of two conduits, one for sewage, the other for storm water or of one conduit collecting the dry weather flow from a number of combined sewers, and thus keeping pollution out of the streams, and carrying it beyond the confines of built-up territory.

In former years as sewers were needed to carry sewage away from villages or settlements within the City, they were built to discharge into the nearest creek.

As the City has developed so that the open country between these villages has been practically built up, the necessity for better sanitary arrangements has arisen; therefore, intercepting sewers were needed to avoid polluting the creeks, and to carry the sewage to the larger streams or further away from habitations.

In the case of the territory tributary to the Wissahickon creek and the Schuylkill river, used for water supply, the sewage is collected in a separate conduit from the storm water and carried to tide water.

The condition of the streams is being improved annually. Work has been carried on in the valleys of the Cobb's creek, Pennypack creek, Frankford creek and Dobson's run, a detailed account of which follows:

Bristol street, Twenty-ninth street and across private property from south of Juniata street to Hunting Park avenue, and in Hunting Park avenue from Twenty-ninth street to McMichael street. The sum of $30,000 was authorized by ordinance of June 20, 1908, loan of April 15, 1908. Bids were received on schedule of August 24, 1909. The contractor was notified to proceed with the construction on September 30, 1909. Work is uncompleted. No lengths have been built or payments made upon this sewer during the year. Contractor, E. H. Vare. Inspector, F. H. Bertholet.

Cobb's creek intercepting sewer in Cobb's Creek Park and Parkway and adjacent to the creek through Mt. Moriah Cemetery from near Sixty-eighth street northwardly to Florence avenue. The sum of $60,000 was authorized by ordinance of June 20, 1908, loan of April 15, 1908. Bids were received on schedule of June 29, 1909. The contractor was notified to proceed with the construction on July 24, 1909. Lengths and sizes built, 442.78 feet of 5 feet diameter, 25.48 feet of 4 feet 6 inches diameter and 59.20 feet of 11 feet diameter sewer. The contractor has been paid on account and final estimates during the year the sum of $13,056.31. Total cost of the work, $56,256.31. Final estimate paid July 18, 1911. Contractor, Robert Higgins. Inspector, J. D. Henderson.

Cobb's creek intercepting sewer extension in Cobb's Creek Park and Parkway from the terminus south of Florence avenue to Thomas avenue. The sum of $23,000 was authorized by ordinance of May 25, 1911, loan of April 21, 1911. Bids were received on schedule of August 15, 1911. The contractor was notified to proceed with the construction on September 8, 1911. Lengths and sizes built, 200 feet of 4 feet 6 inches diameter sewer. There has been paid to the contractor on account during the year the sum of $1,306.40. Work is in progress. Contractors, Ryan & Reilly. Inspector, J. D. Henderson.

Cobb's creek intercepting sewer extension in Cobb's Creek Park, from the terminus at Thomas avenue to Baltimore avenue. The sum of $23,000 was authorized by ordinance of July 21, 1911, loan of June 19, 1911. Bids were received on schedule of November 28, 1911. The contractor was notified to proceed with the construction on December 14, 1911. Work has not as yet been started. Contractor, David Peoples.

Dobson's run intercepting sewer in Ontario street from Roberts avenue to.Henry street and across private property to south of Juniata street. The sum of $25,000 was authorized by ordinance of May 10, 1907, loan of February 9, 1907. The sum of $33,000 was authorized by ordinance of June 20, 1908, loan of April 15, 1908. Bids were received on schedule of April 27, 1909. The contractor was notified to proceed with the construction on June 9, 1909. Work is uncompleted. No lengths have been built or payments made upon the sewer during the year. Contractor, E. H. Vare. Inspector, F. H. Bertholet.

Dobson's run storm water and sewage sewer extension across private property, from terminus near Ontario and

Henry streets to existing sewer near Juniata and Bristol streets. The sum of $31,000 was authorized by ordinance of May 25, 1911, loan of April 21, 1911. Bids were received on schedule of August 15, 1911. The contractor was notified to proceed with the construction on September 23, 1911. Work is in active progress. There has been no payment made during the current year. Contractor, Joseph Perna. Inspector, F. H. Bertholet.

Frankford intercepting sewer extension in Torresdale avenue, from the terminus southwest of Gillingham street to Margaret street, in Margaret street from Torresdale avenue to Valley street, and in Ditman street from Margaret street to Meadow street. The sum of $37,500 was authorized by ordinance of July 21, 1911, loan of June 19, 1911. Bids were received on schedule of November 28, 1911. The contractor has not as yet been notified to proceed with the construction.

Pennypack creek intercepting sewer adjacent to Pennypack creek, between Delaware river and Frankford avenue. The sum of $30,000 was authorized by ordinance of June 20, 1908, loan of April 15, 1908. Bids were received on schedule of August 30, 1910. The contractor was notified to proceed with the construction on September 15, 1910. Lengths and sizes built, 1,461.81 feet of 24 inch diameter vitrified pipe, 1,137 feet of 18 inch diameter vitrified pipe, 214 feet of 15 inch diameter vitrified pipe, 2,268.78 feet of 12 inch diameter vitrified pipe, 206 feet of 12 inch diameter cast iron pipe, 16 feet of 3 feet by 2 feet brick sewer. The contractor has been paid on account during the year the sum of $22,080. Work is not completed. Contractor, Richard P. Bennis. Inspector, J. L. Stinger.

Pennypack creek intercepting sewer extension in Race road, from near Mill street to Frankford avenue, and in

Frankford avenue from Race road to Ashburner street. The sum of $11,500 was authorized by ordinance of May 25, 1911, loan of April 21, 1911, and an additional sum of $11,500 was authorized by ordinance of July 21, 1911, loan of June 19, 1911. Bids were received on schedule of November 28, 1911. The contractor was notified to proceed with the construction on December 14, 1911. Work is in progress. There has been no payment made during the current year. Contractor, John McMenamy. Inspector, J. L. Stinger.

Wingohocking Creek System.

Before the City of Philadelphia was chartered, and before the visit of William Penn to the colony, settlements had been made by the Germans within the county at Germantown and by members of the Society of Friends at Frankford.

From this initial colonization there have grown two populous communities intimately connected, from a sanitary standpoint, in that the Wingohocking creek, covering an area of 5,500 acres, into which all the sewage from Germantown is discharged, flows into Frankford creek and affects its condition to the detriment of the residents of Frankford.

For many years the Department of Public Works has been endeavoring to better the conditions in the Wingohocking area: first, by extending the large main sewer, carrying the flow of the Wingohocking creek; second, by extending the smaller tributary main sewers in the area; and third, by formulating plans for an intercepting sewer to remove pollution from the Frankford creek by carrying the dry weather flow of the sewers emptying therein to the Delaware river.

The magnitude of the work is such as to delay its con-

summation, but progress each year serves for the advancement of the project towards that end.

The work in this system carried on during the years was as follows:

Hunting Park avenue, from Sixth street to Ninth street. The sum of $11,500 was authorized by ordinance of July 21, 1911, loan of June 19, 1911. Bids were received on schedule of November 28, 1911. The contractor was notified to proceed with the construction on December 21, 1911. Work has not as yet been started. Contractor, Frederick T. Buckius.

Cohocksink Sewer.

In the earlier stages of the development of the various boroughs and townships which subsequently became merged into the City, sewer construction was carried on as emergency required, with the building materials then accepted as best for construction.

Since that time many decades have elapsed, the materials composing the sewers have worn out, or portions of the structures have become weakened so that at times of severe storms great damage has resulted by the collapse of the sewers.

One of the largest of these, which, in the development of the City's sewer system, became merged therein, is the Cohocksink sewer, which for some years has been reconstructed in part, which process must be continued.

For the reconstruction and relief of the Cohocksink sewer, the sum of $1,500 was authorized by ordinance of December 30, 1907. Bids were received on schedule of June 3, 1908, for the reconstruction in Thompson street, between Fourth street and Orianna street. Contract awarded to Daniel Bader. This contract was executed on June 25, 1908, but owing to the small sum appropri-

ated and to the fact that, fortunately, no break has occurred since then, the contractor was not ordered to proceed with the reconstruction.

For the reconstruction of the Cohocksink sewer, the sum of $50,000 was authorized by ordinance of July 21, 1911, loan of June 19, 1911. It is the intention to use this sum for rebuilding the sewer in Twelfth street, from north of Diamond street to as near Dauphin street as can be rebuilt for the amount available. This section of the Cohocksink sewer is urgently in need of reconstruction, but it was not deemed advisable to open up the street and begin work of this magnitude during the latter part of the summer and continue it through the winter months. Plans have been prepared, and bids will be received and contract awarded so that the work can be started early in the spring of 1912.

Sewers Constructed in Connection with Bridge Contracts.

The following sewers were constructed in connection with bridge contracts: In connection with the Roberts avenue bridge, under the Chestnut Hill Branch of the Connecting Railway, there was built 49 lineal feet of 15-inch trera cotta pipe.

In connection with the bridge on the line of Springfield avenue, under the West Chester and Philadelphia Railroad, there was built 151 lineal feet of egg-shaped brick sewer, three feet by two feet diameter.

Sewers Built in Connection with the Widening of Delaware Avenue at Vine and South Streets.

There was built in connection with the contract for widening Delaware avenue, between Vine street and Fairmount avenue, a length of 125.5 feet of brick sewer, three

feet six inches in diameter, and 48 feet of brick sewer, three feet in diameter.

In connection with the contract for widening Delaware avenue at South street, there was built a length of 31.5 feet of concrete sewer, special section, of dimensions eight feet wide by six feet high. The total length was 205 feet, built at a cost of $3,084.87.

Sewers Built in Connection with the Boulevard.

Work upon sewers for the drainage along the Boulevard has been actively prosecuted during the year, under a contract for grading and appurtenant work, under the control of the Chief of the Bureau of Highways.

The work during the year, extending over three survey districts amounts to a total length of 6,677.3 feet, upon which has been paid on account the sum of .

A table giving in detail the lengths, sizes, appurtenances and costs is appended. The contractor, the McNichol Paving and Construction Company. Inspectors, Harry W. Newton and George W. Myers.

Sewers Built in Connection with the Abolishment of Grade Crossings.

Work upon sewers under four contracts for the abolishment of grade crossings was continued, and resulted in the construction of 5,790 linear feet of sewers with appurtenances, ranging in size of from 15 inches to three feet four inches by five feet diameter. There was paid on account of this work the sum of $33,334.46.

Investigation for More Sanitary Methods of Sewage Disposal.

The study of a comprehensive plan for the collection, purification and disposal of the sewage of the entire City,

authorized by ordinance of Councils, and made obligatory by reason of the terms of permits issued by the State Department of Health, has been continued through the year. It may be well to reiterate the statement that during the years 1909 and 1910 the Bureau operated a sewage treatment station, and published the results of the experiments in a report during the early part of 1911. The report is of a scientific nature, and has attracted the attention of scientific men and engineers, public libraries, and officials in the principal cities of this country and of foreign countries. Many hundreds of applications have been received from these sources for copies of the report, but owing to the limited edition the requests could not of necessity be granted. The work which has been carried on during the past year has comprised the application of the factors determined at the testing station and appertaining to the various methods of sewage disposal to the local problem, the study of which has involved the determination of the present and future population of various divisions of the City, measurements and gaugings of sewers, in order to arrive at the amount of sewage that must be considered in the problem, the compilation of data from American and foreign cities upon all phases of the subject of sewage disposal, sanitary examinations of the Schuylkill and Delaware rivers in front of and below the City, the preparation of diagrams and plans for the comprehensive plan in all its sub-divisions, the preparation of estimates of cost, and, finally, the preparation of a report upon the whole project.

Consultations were held with expert sanitary engineers, and other cities were visited to examine special machinery for sewage disposal works in operation.

The problem is one of considerable magnitude, and, as compared with similar problems in other cities, with

one or two exceptions, probably surpasses them in point of quantity of sewage to be treated. There are rapid advances and many changes being made in the science of sewage disposal, and in the views of those who conduct sewage disposal works; it therefore requires the officials to be in touch with the current practice, both here and abroad, and also with the views of sanitarians on both continents, in order to secure for this City the most efficient methods of treatment, both as to rapidity of operation and economy of cost, and that the works as recommended may embody all the latest mechanical and labor saving devices.

It is expected that this subject will be treated of in a report to be published in a short time.

Pennypack Creek Sewage Disposal Works.

Councils, by ordinances of May 10 and July 5, 1907, appropriated the sum of $150,000 for the purpose of constructing a sewage disposal works for City institutions in the vicinity of Torresdale, including the County Prison, the House of Correction and the proposed Home for the Indigent.

Other matters affecting the design developed between the time of passage of the ordinance and the placing of the work under contract, some of which are as follows: The purchase by the City of the land adjacent to the Pennypack, east of Frankford avenue to State road, excepting one property, for park purposes; the purchase of two tracts of ground for establishing homes for the feeble-minded and for the indigent; and the desirability of removing pollution from waters which reached the intake to the Torresdale water filtration works, made it advisable to provide also for a sanitary means of disposal

of the sewage of the town of Holmesburg, adjacent to Pennypack creek.

The land chosen for the locations of the pumping stations and the disposal works was already in the possession of the City, as illustrated in the last annual report.

The design of the works was fully described therein also.

Work upon the various contracts of this project has been carried on during the year, the details of which are as follows:

Contract No. 1, for pumping station and operating house, and for grading, macadamizing and appurtenant work.

This work was advertised for proposals, that were received on July 20, 1910. The contractor was notified to proceed on September 15, 1910. The limit of contract is $21,000; time to complete, four months. There has been paid on account the sum of $10,500. The contractor is Costello & Co. Inspector, J. W. Harmer.

Contract No. 2, for pumps, engines, gas producers and accessories at Pennypack Creek Pumping Station. This work was advertised for proposals that were received on July 20, 1910.

The contractor was notified to proceed on October 14, 1910. The limit of contract is $20,000; time to complete, four months. The machinery was ready for delivery early in the year, but was held awaiting the completion of the pumping station. There has been paid on account the sum of $3,200. The contractor is the Keystone State Construction Company. Inspector, William Connor, of the Bureau of Water.

Contract No. 3 comprised a screen, sludge elevator and drying machinery, which was not advertised and has been modified.

PENNYPACK CREEK SEWAGE DISPOSAL WORKS—SEDIMENTATION TANK.

PENNYPACK CREEK SEWAGE DISPOSAL WORKS—PERCOLATING FILTER DURING CONSTRUCTION.

Contract No. 4, for constructing sewage disposal works, force main and accessories at State road and Ashburner street. Proposals were received on July 20, 1910. The contractor was notified to proceed on September 15, 1910. The limit of contract is $67,000; time to complete, six months. There has been paid on account the sum of $42,993.90. The contractor is Costello & Co. Inspectors, T. R. Wiggins and T. F. Nevin.

Contract No. 5, for furnishing operating machinery and accessories. This work was advertised for proposals on September 19, 1911, and contract entered into under date of October 7, 1911. The contractor was notified to proceed on December 11, 1911. The limit of contract is $1,500; time to complete, four months. The work awaits final inspection before delivery. The contractor is M. L. Bayard & Co.

Contract No. 6, for the construction of frame buildings and painting valve box covers. This comprises the construction of a disinfection house, with other small appurtenances about the works. The work was advertised for proposals November 28, 1911, and contract made under date of December 2d with Edward Fay & Sons. Amount of contract, $900; time to complete, one month.

Contract No. 7, for a hot water heating plant. This work was advertised for proposals on November 28, 1911, and contract made under date of December 5th with M. L. Bayard. The amount of contract is $1,500; time to complete, three months.

Certain miscellaneous contracts were entered into for materials to be delivered, the assembling and placing of which was done by the other Bureaus of the City. These were as follows:

Estate of Chas. Perkes, for furnishing lead, $81.00.

George B. Clopp, for screening device, $198.00.

Donaldson Iron Company, for cast iron pipe, $551.68.

Walker & Kepler, for electrical supplies and equipment, $1,200.

Branch Sewers and Inlets.

There were no funds provided for the construction of branch sewers and inlets in the annual appropriation for 1911.

The appropriations which became available from loans were as follows:

From loan of April 21, 1911, and authorized by ordinance of May 25, 1911	$200,000
From loan of June 19, 1911, and authorized by ordinance of July 21, 1911	100,000
Total	$300,000

The number of new contracts drawn for branch sewers was 149, and there were 100 contracts completed, some of them having been carried over from the previous year.

During the year there were constructed 12.332 miles of branch sewers at public expense, at a total cost as follows:

In warrants	$88,157 28
Assessment bills	127,550 53
Inspection	32,985 00
Total	$248,692 81

Excess bills for collection, and balances amounting to $5,013.59 were turned over to the City.

There was authorized in the annual appropriation by ordinance approved December 31, 1910, the sum of $1,000 for the reconstruction of inlets, etc. This was placed under contract and completed during the year.

A contract was entered into for the construction and

reconstruction of inlets, curbing, laterals, manholes, etc., to the amount of $1,500. This sum was taken from the balance in the branch sewer appropriation of July 19, 1909, loan of July 1, 1909, the work being completed during the year.

Contracts were also entered into for the construction and reconstruction of inlets, curbing, laterals, manholes, etc., to the amount of $31,000. This sum was taken from the balance in the branch sewer appropriation of May 25, 1911, loan of April 21, 1911.

The work accomplished comprises the construction and reconstruction of 270 inlets not included in sewer contracts, the placing of 2,167 feet of curved and straight curbing therewith, and the laying of 8,580 feet of lateral sewer connections. A detailed statement of this work will be found in the appendix to this report.

Private Sewers.

Work was executed during the year upon 67 contracts for the construction of sewers at private cost, under the inspection of the City. The work has resulted in the completion of 44,269 linear feet, equal to 8.384 miles of branch sewers, ranging from 12 inches to three feet in diameter, the inspection being without cost to the City.

Summary of Work Upon Sewers.

The total number of main sewers under contract and construction, of which five were carried over from last year, was sixteen, and of which nine were intercepting sewers.

The total length of all sewers built during 1911 was 24.527 miles, as follows:

	Feet	Miles
Main sewers	7,293.820	1.381
Branch sewers	65,117.778	12.332
Private sewers	44,269.00	8.384
Grade crossing sewers	5,790.00	1.096
Boulevard sewers	6,677.30	1.264
Widening of Delaware avenue	205.00	.039
Miscellaneous	200.00	.031
Total	129,552.898	24.527

There was expended for main sewers in 1911:

In warrants	$58,136 12
Cost of inspection	4,365 00
Assessment bills	none.
Total	$62,501 12

Total Length of Sewers Constructed.

Main sewers	187.022 miles
Branch sewers	878.387 miles
Private sewers	149.479 miles
Miscellaneous sewers (see Table II)	23.105 miles
Total	1,237.993 miles

Sewer Connections and Records.

Sewer connections of 10,528 buildings were authorized during the year, which involved the issuing of 2,937 permits, with the usual inspection, draughting and return of the reports, as required by ordinance of April 3, 1883.

The permits issued in each month were as follows:

January	79	July	251
February	101	August	273
March	277	September	244
April	321	October	265
May	333	November	280
June	306	December	207

The number in each ward:

First	132	Twenty-fifth	80
Second	54	Twenty-sixth	81
Third	50	Twenty-seventh	12
Fourth	18	Twenty-eighth	27
Fifth	15	Twenty-ninth	47
Sixth	20	Thirtieth	130
Seventh	20	Thirty-first	58
Eighth	30	Thirty-second	13
Ninth	13	Thirty-third	63
Tenth	15	Thirty-fourth	114
Eleventh	14	Thirty-fifth	12
Twelfth	13	Thirty-sixth	168
Thirteenth	33	Thirty-seventh	19
Fourteenth	10	Thirty-eighth	145
Fifteenth	25	Thirty-ninth	157
Sixteenth	14	Fortieth	60
Seventeenth	14	Forty-first	47
Eighteenth	34	Forty-second	130
Nineteenth	73	Forty-third	60
Twentieth	86	Forty-fourth	15
Twenty-first	70	Forty-fifth	81
Twenty-second	197	Forty-sixth	172
Twenty-third	137	Forty-seventh	45
Twenty-fourth	24		

The character of drainage was:

Water closets	14,001	Slaughter houses	1
Surface	12,120	Ice houses	28
Sinks	11,295	Markets	51
Cellars	8,644	Breweries	19
Stables	179	For future use	4,177
Factories	210	Miscellaneous	6,883

Four hundred and thirty-three (433) drains were connected with the Manayunk intercepting sewer and its branches, all of which were inspected by the supervisors of the intercepting sewer.

The Bureau of Health has, as usual, been furnished with a daily list of all permits issued.

Two hundred and thirty-five (235) plans of main and

branch sewers were received from the District Surveyors, which were duly registered and platted on the drainage sheets and atlases.

Twenty-one (21) plans of lateral pipes put in old sewers were also returned.

The indexing of the inspectors' books has been continued; the number received during the year was 174, making the total now in use 8,116.

Three inspectors of drain connections and two supervisors of the Manayunk intercepting sewer have been continuously on duty during the year, and their daily, weekly and monthly returns were promptly made. All moneys for permits, searches, balances, etc., were paid at the office of the Receiver of Taxes (ordinance of December 30, 1886), taking his receipt therefor.

The receipts of the Bureau from all sources (except District Surveyors) during the year were $35,374.02 (a decrease of $3,772.85 from 1910).

January	$476 25	July	$4,690 97
February	1,271 74	August	2,783 59
March	3,958 24	September	2,269 26
April	3,725 84	October	2,531 70
May	3,147 22	November	3,596 65
June	4,985 11	December	1,937 25

Recapitulation.

For sewer permits	$17,629 00
For sewer bills	16,359 29
For sewer balances	72 98
For searches	1,225 25
For miscellaneous receipts	87 50
Total	$35,374 02

Rainfall Discharge and Tidal Observations.

For many years the City has maintained in various localities six pluviometers, and in a number of large sewers

five stream gauges, and at Arch street wharf, Delaware river, a tide gauge, all automatic in their action, for the purpose of obtaining meteorological data, which would affect the workings of the sewer system.

The tabulation of the results obtained, giving the relation of the run-off through the sewers to the precipitation, with tidal conditions interjected, is an essential part of the work of intelligent sewer design.

In addition, the data has been found to be very useful in the Courts, and has been in considerable demand for other purposes.

Several severe storms occurred during the year: a very destructive wind storm, accompanied by rain, on March 27th; other severe storms were on July 17th, August 3d and 26th and 27th, and August 30th and 31st. The month of August was very rainy, the maximum for the several districts being 15.92 inches in Manayunk, and the minimum 10.72 inches in South Philadelphia, giving a mean of 13.32 inches.

Plate II shows the relation between intensity and duration of rainfall. The three different curves were based upon data obtained in the last 25 years. The great severity of the storm of July 17th is worthy of note, when were recorded intensities of 9.44 cubic feet per second per acre for five minutes, 7.08 for ten minutes and 1.8 for one hour. This storm shows above the extraordinary curve up to 30 minutes' duration, after which it shows below, but not until the storm had spent itself, after 2½ hours, did it approach the ordinary storm curve. By studying the storms during the year, however, the majority of them are seen to lie about or below the ordinary storm curve. The storms plotted are those showing the maximum rates from the different pluviometer records.

There are shown graphically rainfall curves and result-

ant discharge in sewers of a typical severe storm, that of August 30th and 31st, taken from the autographic registering gauges, mentioned in previous reports. The storms of July 17th and August 3d were short, but with high intensities, while those of August 26th-27th and August 30-31st were of long duration. The high percentages of run-off in the last two mentioned storms resulted from having followed a long rainy spell, it being obvious that the territory, after having been well saturated, will thenceforth deliver a greater percentage of the precipitation for run-off.

From other observations taken from pluviometers and stream or sewer gauges, placed in different parts of the City, records have been made during the year of the most severe storms. This data has been arranged in Tables 1, 2 and 3.

Tidal Observations.

These were continued at Arch Street Pier on the Delaware river. For several years the prevailing northwest winds have caused the lowering of the tides. The extreme tides noted for the year occurred as follows: On March 3d, minimum high water, —6.22; on March 16th, minimum low water, —9.97; on September 1st, maximum low water, —5.44; and on September 19th, maximum high water, —0.43. The accompanying diagram, Plate I, shows graphically the weekly mean fluctuations of high and low water for the whole year.

Mean high tide recorded for the year is —2.46; mean low tide, —7.73. The mean of tides for the last 12 years were: High tide, —2.47; low tide, —7.59, City Datum.

The mean range of tides for the last 12 years has been 5.12 feet.

The climatic conditions during the year were subject to great variation. There may be noted the following: A heavy thunderstorm, lasting about two hours, on February

4th; a destructive storm, accompanied by high winds, causing much damage, on March 27th, and heavy precipitation was noted as hereinbefore mentioned.

The greatest daily variation in temperature was on November 12th, amounting to 43 degrees.

The accumulated excess in temperature for the year was 690 degrees.

TABLE I—*Rainfall (in Inches) in the City of Philadelphia During 1911.*

1911	South Philadelphia	Central Philadelphia	Manayunk	Germantown	Frankford	Average rainfall	U. S. Weather Bureau
	2d Dist.	7th Dist.	8th Dist.	9th Dist.	10th Dist.		Post Office Building
January	2.72	3.07	3.66	3.31	3.20	3.19	3.22
February	1.86	1.87	2.53	2.29	2.14	2.14	2.69
March	2.84	2.75	3.40	2.95	2.86	2.96	2.72
April	3.82	3.20	4.14	3.61	3.75	3.71	3.68
May	2.00	1.70	2.61	1.53	0.97	1.76	1.68
June	4.53	4.90	4.76	4.67	4.11	4.60	5.10
July	4.58	2.70*	3.13	2.51	2.83	3.15	4.19
August	10.72	12.66*	15.92	11.09	11.51	12.38	12.10
September	3.14	2.27	3.25	2.16	2.30	2.62	2.52
October	3.63	3.80	4.59	4.30*	3.74	4.01	4.20
November	5.66	5.28	6.14	5.94	5.74	5.75	5.58
December	3.36	3.33	3.87	3.19	3.59	3.47	3.67
Totals	48.86	47.53	58.00	47.55	46.74	49.74	51.35

Average yearly rainfall from 1890 to 1911, inclusive, 42.38. *Estimated.

TABLE II—*Details of Most Severe Storms.*

1911	Record at		Precipitation, inches	Duration, hours	Mean rate per hour, inches	Maximum rate per hour		Maximum fall in one hour, inches
	Locality	District				Inches	Minutes	
May 30	South Philadelphia	Second	0.91	2	0.46	1.89	15	.89
May 30	Manayunk, Philadelphia	Eighth	1.35	2	0.68	2.35	30	1.23
June 11	South Philadelphia	Second	0.59	1½	0.39	2.04	15	0.69
June 13	Central Philadelphia	Seventh	0.76	½	1.52	2.24	20	---
June 13	West Philadelphia	Eleventh	1.30	¾	1.73	4.72	15	---
July 17	South Philadelphia	Second	1.24	2¼	0.55	3.18	10	1.00
July 17	Manayunk, Philadelphia	Eighth	1.77	3	0.59	2.76	15	1.37
July 17	Germantown, Philadelphia	Ninth	1.31	3¼	0.40	2.83	15	0.94
July 17	Frankford, Philadelphia	Tenth	1.51	3½	0.43	4.25	10	1.23
July 17	West Philadelphia	Eleventh	2.07	3½	0.59	9.44	5	1.79
July 17	South Philadelphia	Second	1.40	1	1.40	5.20	10	1.40
August 11	South Philadelphia	Second	0.45	½	0.90	3.80	7	---
August 27	Frankford, Philadelphia	Tenth	0.57	1	0.57	1.18	20	0.57

TABLE II—Continued.

1911	Record at		Precipitation, inches	Duration, hours	Mean rate per hour, inches	Maximum rate per hour		Maximum fall in one hour, inches
	Locality	District				Inches	Minutes	
August 27	West Philadelphia	Eleventh	2.13	5	0.43	3.15	15	0.93
August 30 and 31	South Philadelphia	Second	3.90	25	0.16	0.53	60	0.53
August 30 and 31	Central Philadelphia	Seventh	5.84	32	0.18	1.14	30	0.73
August 30 and 31	Manayunk, Philadelphia	Eighth	8.19	29	0.28	1.57	30	0.98
August 30 and 31	Germantown, Philadelphia	Ninth	4.65	35	0.13	0.71	30	0.53
August 30 and 31	Frankford, Philadelphia	Tenth	5.62	29	0.19	0.98	30	0.71
August 30 and 31	West Philadelphia	Eleventh	6.20	29½	0.21	1.61	30	1.02
September 11	South Philadelphia	Second	0.70	2¼	0.31	1.81	15	0.61
November 6	Central Philadelphia	Seventh	1.00	3	0.33	0.63	30	0.55
November 6	Germantown, Philadelphia	Ninth	1.06	3	0.35	0.59	30	0.55
November 6	Frankford, Philadelphia	Tenth	1.09	3	0.36	0.86	15	0.57
November 6	West Philadelphia	Eleventh	1.18	3	0.39	0.79	30	0.63

TABLE III—*Intensities of Rainfall and Maximum Flow in Sewers.*

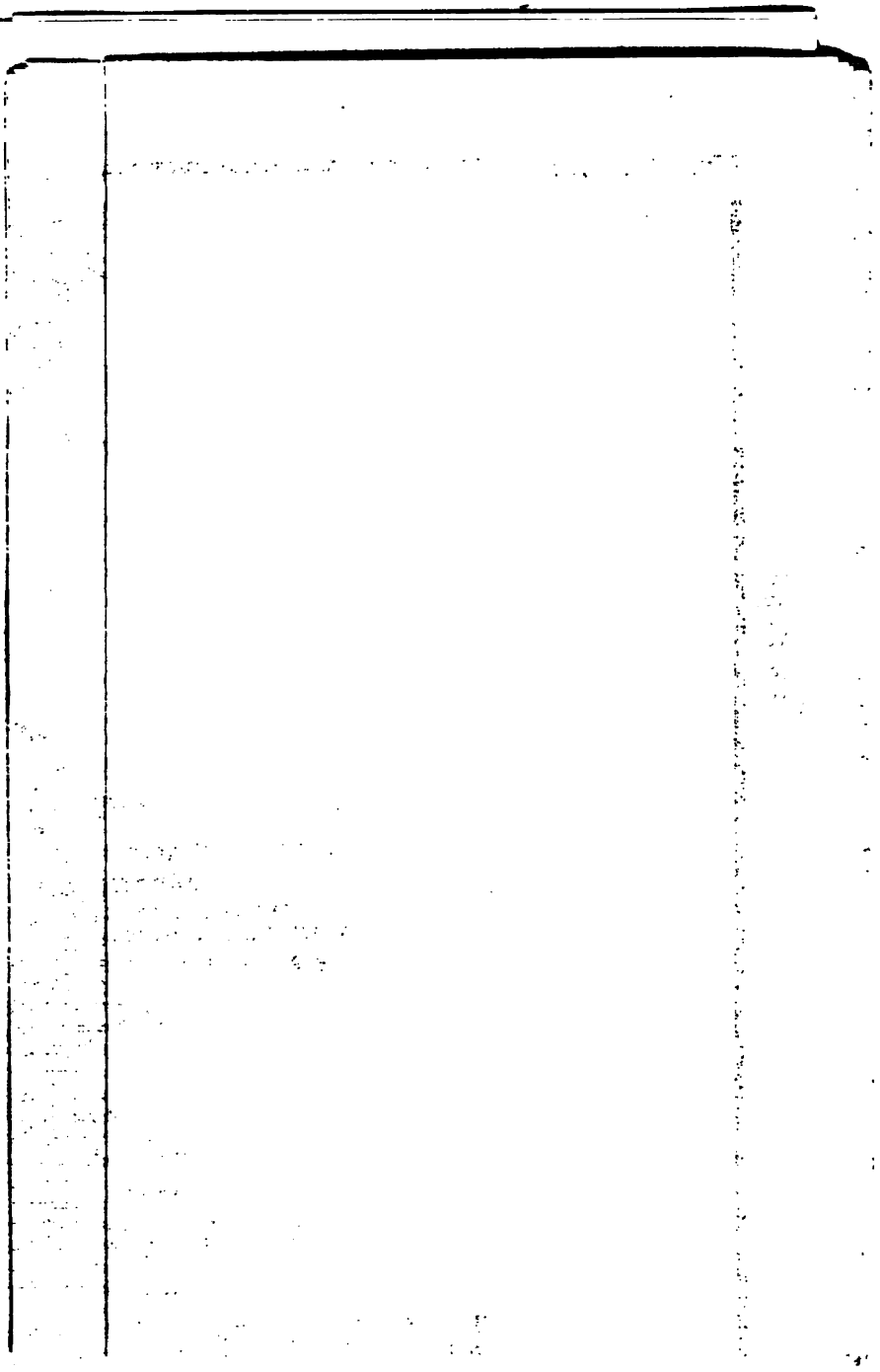
1911.	Stream gauge records.				Pluviometer records.					
	Maximum depths and discharges.				Intensities of rainfall (inches per hour) for varying durations, taken within a sixty-minute limit.					
	Twelfth and Diamond streets sewer, 13′-0″ diameter.		Third and Lombard streets sewer, 6′-0″ diameter.		Duration in minutes.					
	Depth. Feet.	Cubic feet. Per second.	Depth. Feet.	Cubic feet. Per second.	10	20	30	40	50	60
June 13	10.85	1395.			2.83	2.24	1.52			
July 17	13.00+	1479.+			3.06	2.42	1.69	1.35	1.13	0.94
August 15	9.44	1205.			2.83	1.48	1.00	0.75	0.60	0.55
August 30	9.37	1191.			2.24	1.35	1.14	0.92	0.80	0.73
September 11	6.12	623.			1.18	0.77	0.67	0.59	0.47	0.47
November 6	6.51	692.			0.71	0.67	0.63	0.60	0.57	0.55
June 11			3.36	81.	2.73	1.59	1.10	0.84	0.68	0.56
July 14			5.10	139.	2.86	1.77	1.30	0.99	0.80	0.69
July 17			6.00+	146.+	3.18	2.54	1.77	1.41	1.16	1.00
August 30			2.74	58.	0.71	0.68	0.67	0.59	0.54	0.53

Preparation and Exhibition of Comprehensive Plans for the Improvement of the City.

During the first five months of the year the work of the General Plans Division consisted largely of the preparation of general plans for municipal improvement for exhibition at the first Municipal City Planning Exhibition, held in the Citv Hall from May 15th to June 15th, 1911. This work was commenced in 1910 by the preparation of a general plan of the City, and a brief description of its character and principal features is contained in the report for that year. The later plans have been based upon it, and have been prepared with a view of separating and illustrating the different classes of improvement suggested by it and some of the special features of each. Since the close of the exhibition a study in detail of some of the suggested street revisions have been taken up.

This series of plans is important as marking the progress made in this City in preparing to meet and solve the large problems of practical and economical municipal expansion which have grown out of the rapid and intensive increase of urban population. We believe they form a practical basis for the intelligent and systematic development of the City along lines which will serve the greatest public usefulness now and in the future. They are placed before the public as preliminary studies only, since it must be recognized that the many progressive improvements they suggest can only be accomplished in the course of many years, and that plans prepared under such conditions must possess a large element of elasticity in order that they may be properly adjusted to meet the exigencies of the future.

The scope of these plans is indicated by the reproductions and descriptions accompanying this report.



The General Plan.

This is a map of Philadelphia and vicinity, and is described in the report for the year 1910. It is drawn to a scale of 1,000 feet to the inch, measures 7 x 9 feet, and is done in ten colors. Its size and the cost of reproduction are such that we have been unable to publish it for distribution, but a plan on a much smaller scale, from which intermediate streets and some of the least important features have been omitted, and showing the general street and park systems in simpler form, has been prepared and is published herewith.

Improvement of the Street System.

The improvement of the street system is covered by six general and special plans:

First:—A map of Philadelphia and vicinity, covering about 1,400 square miles, showing existing system of radial highways and suggested connections.

Philadelphia is, and has been for more than two centuries, the commercial center of a territory lying within a radius of at least 50 miles; that is, most of the traffic and trade within that area has a more or less intimate relationship with the City, and has need for direct communication with it. This condition has existed since the founding of the City. The early pioneers pushed out radially along the lines of least resistance from this center, and formed their settlements and the routes they established connecting these settlements with the chief center, and with each other occupied convenient and strategic locations and still remain important traffic routes. The map illustrates the very even and systematic distribution of these routes, which grew up naturally to meet the transportation needs of the

entire territory, and suggests the very first principle of efficient street planning—the creation of direct traffic routes between important centers of population and industry.

Authority should be obtained and legal measures taken for protecting these main routes from the encroachment of buildings which might impair their future usefulness. Their importance is certain to increase as the communities they serve grow in size and population, and early provision should be made for such rectification of alignment, width and grade as the needs of modern agencies of transportation may require.

Second:—A map of Philadelphia and vicinity, covering an area of about 200 square miles, showing a system of main traffic routes as now existing, with suggested extensions and connections.

The rectangular system of streets upon which the greater part of the City has been built provides direct routes of travel in only a limited number of directions, and offers little opportunity for either rapid or economical transportation. This map shows the wider and more important streets of the existing system which are now open or upon the confirmed plan, and which might be regarded as parts of a system of main traffic routes, but many of them would have to be widened to increase their capacity and give them real importance as such, since the width of some of them does not exceed 60 feet. The suggested extensions and connctions are chiefly diagonals planned with a view of relieving the transportation situation generally, and affording direct routes to and from all sections of the City. The diagonals now existing are formed by the radial roads of the early settlers. They are generally our most important and heaviest travelled streets, and this fact indicates that the supplementing of the regular system with

them is a wise policy which should be adopted and put into practice at once.

Third:—A map of the Central District of Philadelphia, between Johnston street and Wyoming avenue, and between the Delaware river and Sixty-third street. An elaboration of the map showing a system of main traffic routes as now existing, with suggested extensions and improvements, within the most completely built-up areas of the City. The changes shown upon this map, consisting of the widening of certain existing streets and the creation of diagonals and traffic places, are essential to the present relief and future expansion of traffic in that area. The general scheme is a tentative one only, as the places where present streets should be widened, new ones opened, and traffic places established can only be determined by a thorough analysis of traffic conditions, and a careful study to determine the most desirable and economical routes for connecting the great business and commercial center with industrial and residential sections. The policy and methods to be adopted in carrying out these important improvements, if any of them are to be carried out, should be determined at as early a date as possible, or serious obstacles in the form of new and costly buildings may prevent their consummation in the most advantageous and economical manner.

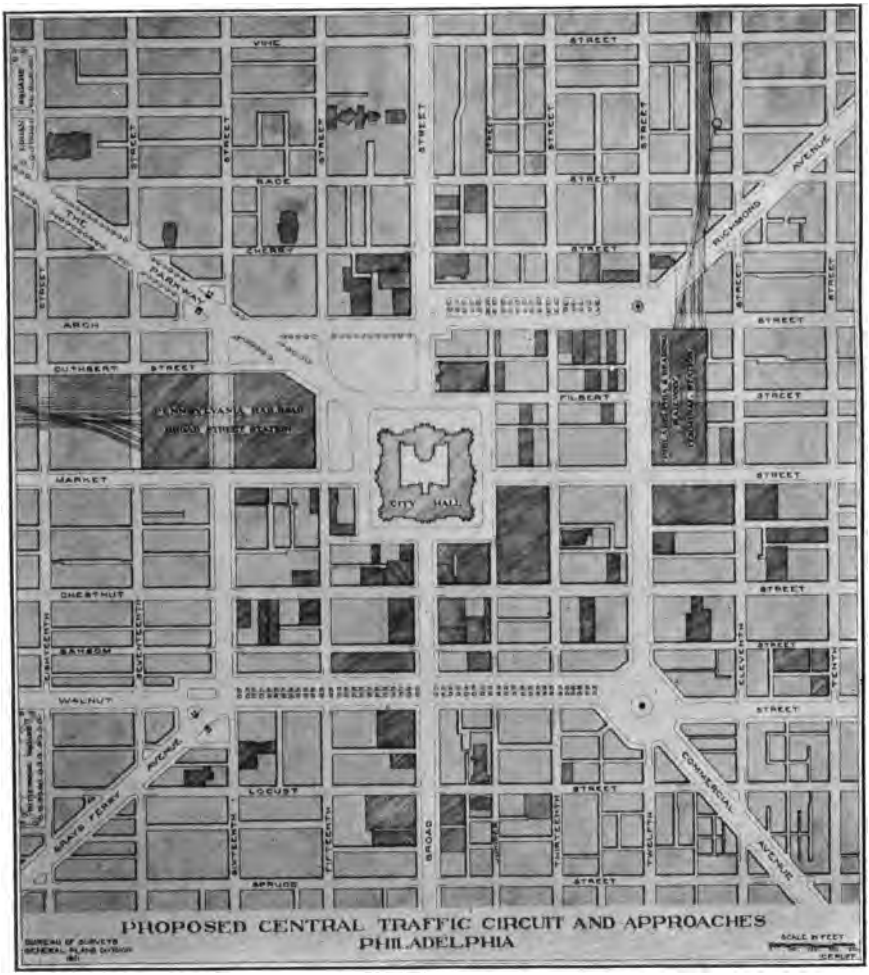
Fourth:—A map of the Southern District of Philadelphia, south of Market street, similar in character to that of the Central District. A large portion of this district is undeveloped, and some of this is closer to the center of the City than any other unimproved property. The general scheme of improvement suggested by the map could readily be established throughout most of this district as a part of the routine work of the Bureau without extra cost

if authorized by ordinance of Councils, and would be of very great benefit to future development.

Fifth:—A plan for the extension of the street system over a part of the Twenty-first Ward. The improvement of this section has been referred to in several previous reports. It contains some of the most desirable property in the City for high-class suburban development, but the lack of suitable crossings of the Wissahickon ravine has delayed its coming into the market and retarded its improvement. The opening of Henry avenue and the construction of a bridge on the line of it would make the entire territory more accessible and would increase the assessable value of land throughout almost the entire ward. The scheme of street extension suggested by the plan, with certain modifications to conform to the various classes of improvement the opening of the territory would encourage, is much better adapted to the topographical conditions than the system of streets formerly projected there.

Sixth:—A plan showing a suggested central traffic circuit and origin of radiating avenues in the vicinity of the City Hall. This scheme was described briefly in the report for the year 1910. It contemplates the creation of a great rectangular circuit formed by the widening of Arch street, Twelfth street, Walnut street and Sixteenth street, with a wide radial avenue extending outward from each corner. The cost of such widening and radial avenues would be great, but would be justified by the permanent benefit to general traffic which would result. The congestion of traffic and the obstacles to the increase of rapid transit facilities in the center of the City are such that some scheme of this kind will ultimately have to be adopted to relieve conditions which are fast becoming intolerable, and this, or some similar project, should be un-

CITY OF PHILADELPHIA
EXTENSION OF STREET SYSTEM
PART OF
TWENTY FIRST WARD


VINE STREET
RACE STREET
ARCH STREET
CHERRY STREET
FAIRMOUNT PARK
OUTHBERT STREET
PENNSYLVANIA RAILROAD BROAD STREET STATION
MARKET STREET
CITY HALL
FILBERT STREET
RICHMOND AVENUE
PHILADELPHIA & READING TERMINAL
CHESTNUT STREET
BANNUM STREET
WALNUT STREET
WALNUT LOCUST STREET
DELAWARE AVENUE
LOCUST STREET
SPRUCE STREET
BROAD
COMMERCIAL AVENUE
SOUTH
PROPOSED CENTRAL TRAFFIC CIRCUIT AND APPROACHES
PHILADELPHIA

dertaken at once. The circuit suggested encloses twelve City blocks with the City Hall as a center, and comes in direct contact with both the great railroad terminals. Its location, in connection with the proposed radials, will provide the routes and the space necessary for the accommodation of the subway lines now in contemplation for the improvement of transit facilities between the center of the City and the suburbs.

Parks, Squares, Civic Centers and Traffic Places.

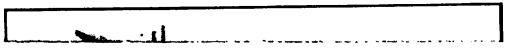
Suggested improvements in this class were covered by ten general and special plans.

First:—A map of Philadelphia and vicinity covering about 1,400 square miles, showing existing parks and parkways and suggested extensions. This map shows only the general system of large parks and connecting parkways, confined to the valleys of streams and such adjacent areas as may be appropriate and desirable for the pleasure and use of the people as places for outdoor exercise and recreation, and includes the valleys of all streams of any consequence tributary to the Delaware and Schuylkill rivers, from Chester creek on the southwest to Neshaminy creek on the northeast, a distance of about 33 miles, and extending northwestward from the Delaware river about 15 miles. The scheme is a tentative one only, and has been worked out in harmony with present day practices of park extension in all progressive communities. One of the most important links of the system is not characterized on the map; this is the parkway along the Schuylkill river, which has been omitted for the time being for lack of sufficient specific knowledge of physical and topographical conditions to enable us to illustrate any practical scheme on the small scale.

Second:—A map of Philadelphia and vicinity covering an area of about 200 square miles, showing the existing system of parks and parkways and suggested extensions. This map is an elaboration of the preceding one, and shows both large and small parks. The method heretofore in vogue in selecting property for small parks and playgrounds has had little regard for equitable distribution to meet the needs of every section of the City.

Third:—A plan for a park along the Delaware river, from Tacony to Poquessing creek. This park would embrace a strip of ground about three and one-half miles long by about 800 feet wide, immediately adjacent to the river. For nearly three-quarters of a mile southward from Poquessing creek the river front is occupied by fine private estates with attractive, park-like grounds, and this section would not need to be acquired or disturbed for public use until such time as the properties might come into the market for sale or sub-division. More than two miles of the frontage southward from these estates is now owned by the City, and immediate steps should be taken to set it apart and improve it for park purposes; measures should also be taken to acquire or protect the remaining section in the vicinity of Tacony. The general scheme of development suggested includes drives, bridle paths, walks, gardens, athletic fields, baths and a yacht basin.

Fourth:—A plan of The Boulevard and its connections, from Fairmount Park to Poquessing creek. This is a part of the inner circuit of the general park and parkway system described in our report for the year 1910. From Fairmount Park to Allegheny avenue, about two-thirds of a mile, it follows a narrow lane which should be widened to 100 feet to conform with the width of Hunting Park



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avenue, from Allegheny avenue to The Boulevard, about two miles further. The Boulevard is legally open and is being improved of the width of 300 feet, from Broad street to Solly street, a distance of about six and three-fourths miles; from the latter point Holme avenue is legally open of the width of 150 feet for a distance of about one and three-fourths miles to Willits avenue and is projected, partly of the same width and partly as a parkway of irregular width, the further distance of about one and three-fourths miles to Poquessing creek.

Fifth:—A plan of that part of Pennypack Park, between Frankford avenue and Pine road, containing 1,189 acres, 477 of which have been acquired for public use.

Sixth:—A plan for a public square and entrance to Cobbs Creek Park at Sixty-third and Market streets. This is on the western boundary line and could be made a gateway to the City as well as to the Park.

Seventh:—A plan for a civic center at Eighty-first street and Botanic avenue. This is in a section of the City where urban development has scarcely begun, and the plan is a suggestion for the grouping of such public and semi-public buildings and open spaces as might be needed.

Eighth:—A plan for a park and social center at Twenty-first and Wolf streets. This plan illustrates in a general way the type of local centers which should be created in every section of the City for the enjoyment, entertainment and amusement of the people of the neighborhood; they might include libraries, public auditoriums, gymnasiums and music pavilions, and portions of the park space might be set aside for playgrounds for children, although their use for the latter purpose is not entirely desirable where the center is surrounded by streets carrying heavy traffic, on account of the danger of the approach.

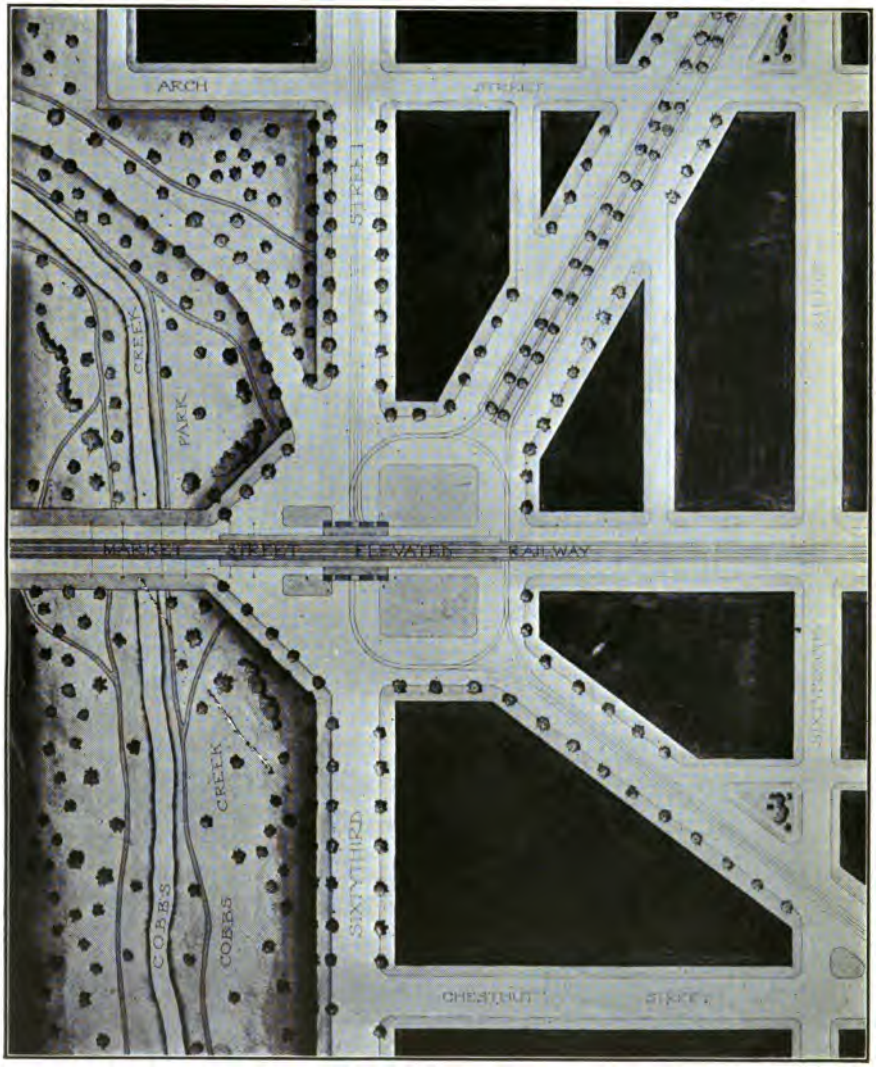
Ninth and Tenth:—Two plans showing a variety of schemes for the enlargement of intersections of important streets and the creation of traffic places. While the concentration of traffic is undesirable from the theoretical and economic viewpoint, no large industrial city has yet been able to successfully prevent it. The strong tendencies of American cities toward concentration of business necessarily creates a concentration of traffic upon certain streets, with the inevitable result of serious congestion at the intersections of such streets; the enlargement of the intersections to permit a spreading out or gyratory movement of the traffic seems to offer the most practical means for relieving such conditions.

River Front Improvement.

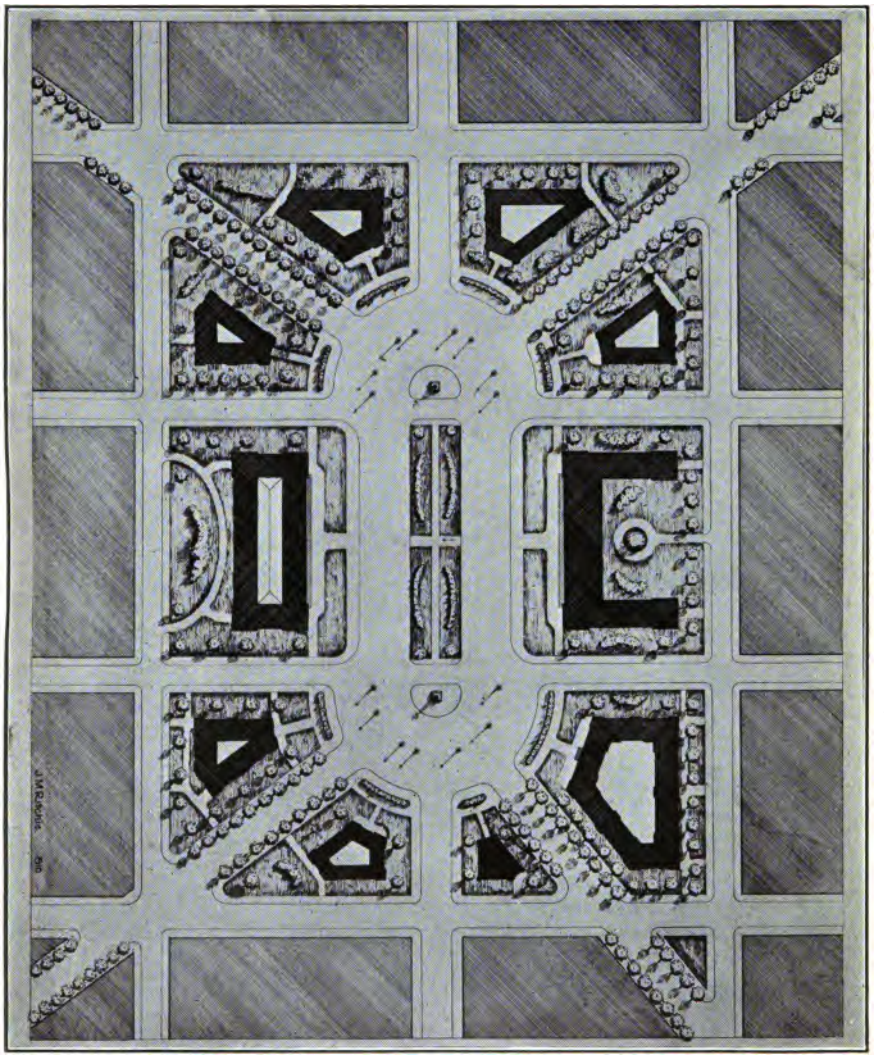
The Division prepared two plans relating to proposed river and harbor improvements.

First:—An elaboration of a plan suggested in 1909 for the establishment of a wide avenue for general traffic purposes, from Catharine street southward, at a sufficient distance from the pierhead lines of the Delaware river to permit the construction of a system of modern docks. The avenue would offer facilities for railroad service connecting with all railroads now entering the City, and the area provided for docks would probably be sufficient to meet the commercial needs of the port for many years.

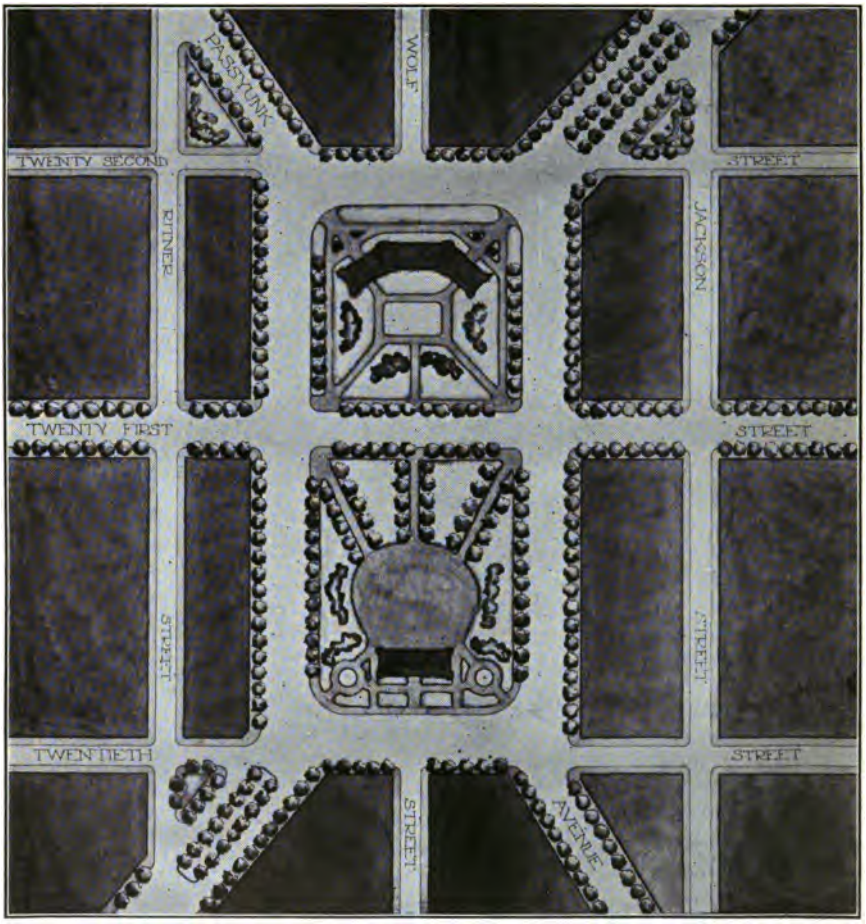
Second:—A preliminary plan for an avenue for general traffic purposes along the Delaware river front, from Poquessing creek to the Schuylkill river, a distance of about 20 miles, at such varying distances from the pierhead line as will permit of the development of the entire river front to meet future industrial and commercial needs. This



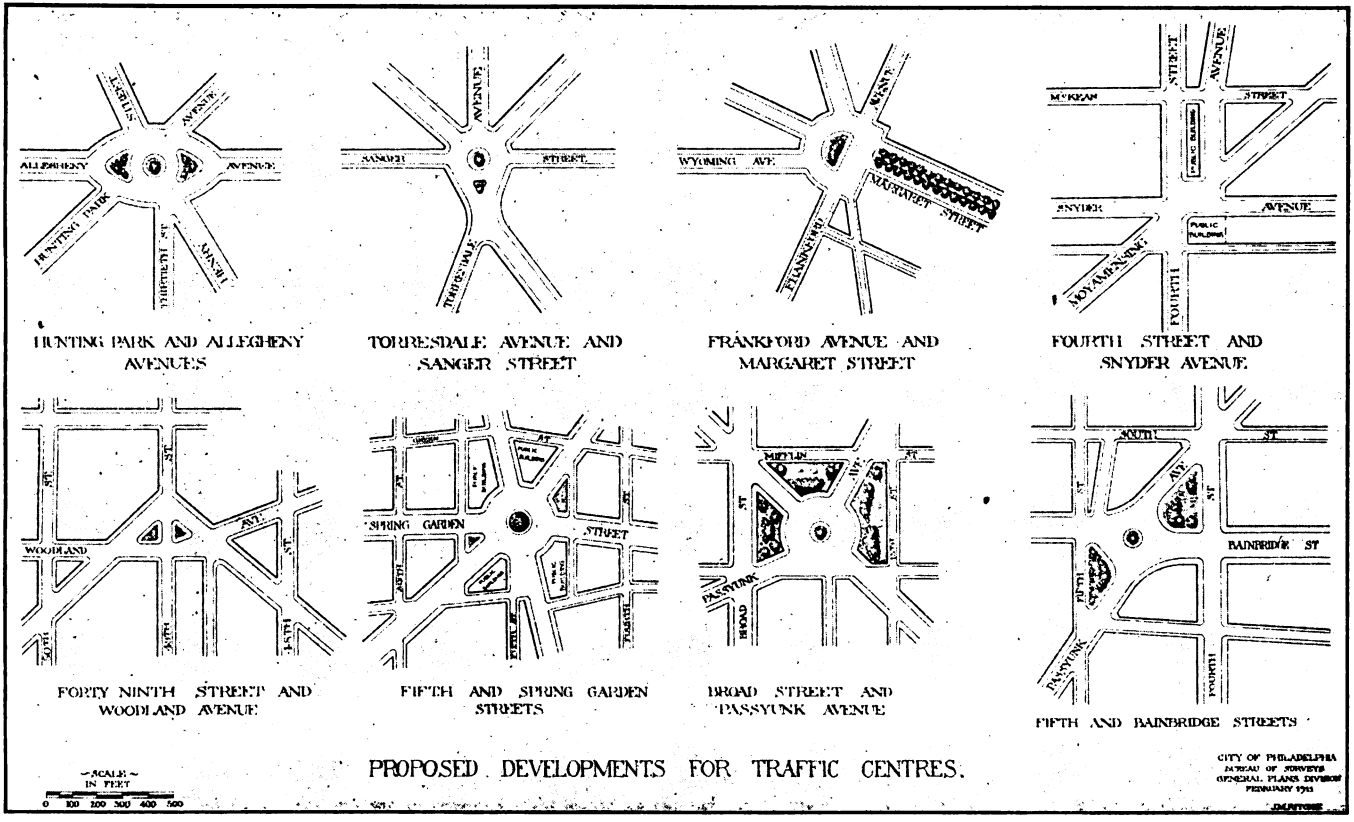
PLAN FOR A PUBLIC SQUARE AND ENTRANCE TO COBBS CREEK PARK AT SIXTY-THIRD AND MARKET STREETS.



PLAN FOR A CIVIC CENTER AT EIGHTY-FIRST STREET AND BOTANIC AVENUE.



Plan for a Park and Social Center at Twenty-first and Wolf Streets.



HUNTING PARK AND ALLEGHENY AVENUES

TORRESDALE AVENUE AND SANGER STREET

FRANKFORD AVENUE AND MARGARET STREET

FOURTH STREET AND SNYDER AVENUE

FORTY NINTH STREET AND WOODLAND AVENUE

FIFTH AND SPRING GARDEN STREETS

BROAD STREET AND PASSYUNK AVENUE

FIFTH AND BAINBRIDGE STREETS

PROPOSED DEVELOPMENTS FOR TRAFFIC CENTRES.

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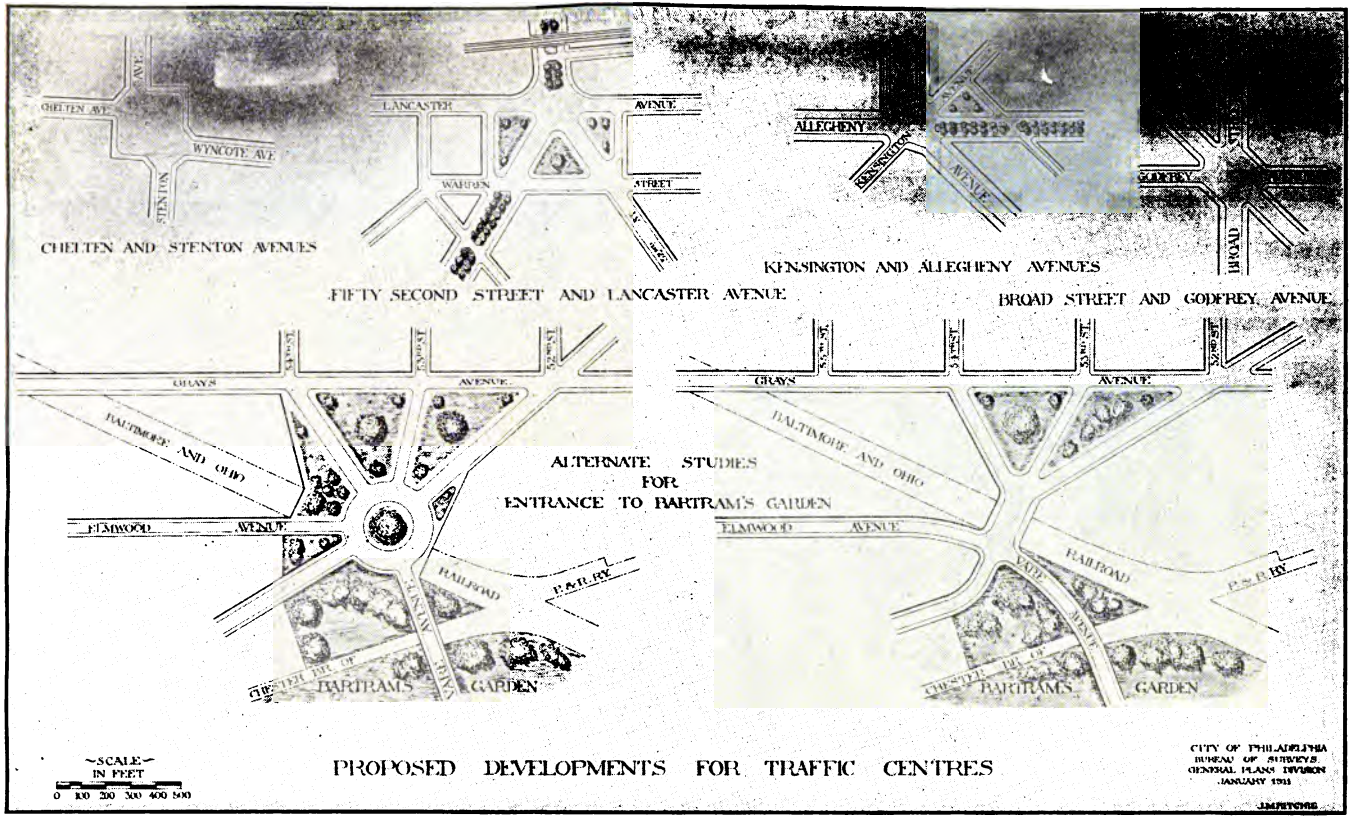
CHELTEN AVE.
WYNCOTE AVE
STENTON
CHELTEN AND STENTON AVENUES
LANCASTER
AVENUE
WARREN
STREET
FIFTY SECOND STREET AND LANCASTER AVENUE
ALLEGHENY
KENSINGTON
AVENUE
GODFREY
BROAD
KENSINGTON AND ALLEGHENY AVENUES
BROAD STREET AND GODFREY AVENUE
GRAYS
AVENUE
BALTIMORE AND OHIO
ELMWOOD
AVENUE
RAILROAD
P.S.P.R.Y.
CHESTER TRS. OF
BARTRAMS
GARDEN
ALTERNATE STUDIES
FOR
ENTRANCE TO BARTRAM'S GARDEN
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PROPOSED DEVELOPMENTS FOR TRAFFIC CENTRES
CITY OF PHILADELPHIA
BUREAU OF SURVEYS
GENERAL PLANS DIVISION
JANUARY 1915

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proposed avenue varies in width from 100 to 250 feet and follows generally the line of Delaware avenue and its connections as now open or upon the confirmed City plan.

Steam Railroads.

Three plans were prepared showing existing steam railroads within the City, their relation to industrial areas, and some suggested improvements.

First:—A map of the central district of the City, showing railroad lines, railroad property, and the distribution of industrial areas. This map was prepared with a view of presenting the railroad situation within the district in convenient form for the preliminary study of such improvement of passenger and freight service into and through the center of the City as the future growth and development of industrial and commercial interests may require.

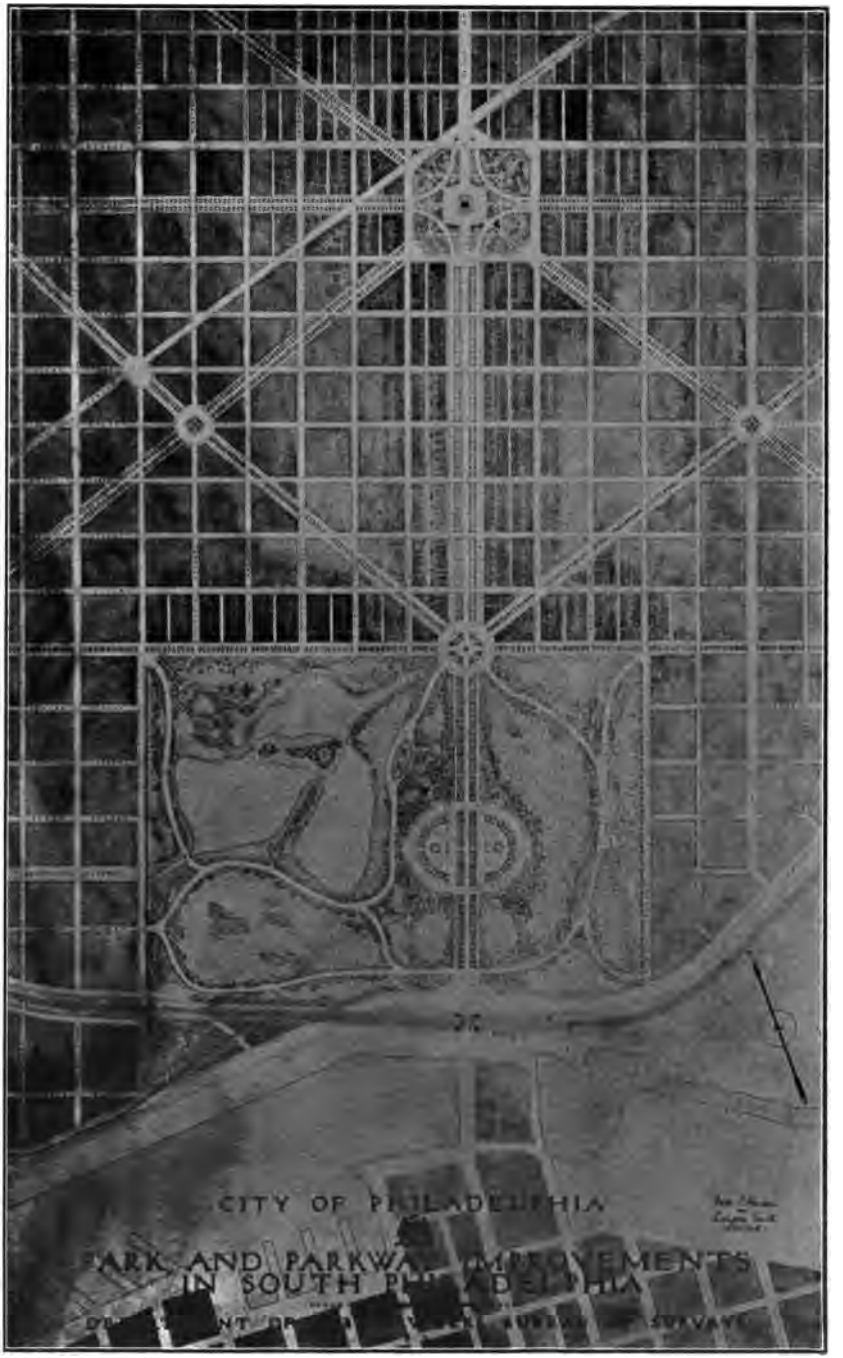
Second:—A map of that portion of the City lying south of Market street, showing railroad lines, railroad property, and the distribution of industrial areas. This map was prepared for the same purpose as that of the central district, and shows the proposed rearrangement of the lines of steam railroads, terminal yards, and railroad and municipal docks contemplated by an ordinance prepared in the Bureau of Surveys in 1910, and submitted by the Mayor to the various railroad companies concerned.

Third:—A plan and profile of the proposed relocation and elevation of the Delaware Extension of the Pennsylvania Railroad and the Schuylkill River East Side Railroad, as contemplated in the rearrangement of the lines of steam railroads and provided for in the ordinance above referred to, in South Philadelphia.

Since the Exhibition, as much of the time of the Di-

vision as has not been occupied by routine work has been given to the preparation of special plans for carrying some of the more important and urgent of the suggested improvements into effect. These include the Central Traffic Circuit; Richmond avenue, from the Central Traffic Circuit northeastward to the intersection of Frankford and Girard avenues; Grays Ferry avenue, from the Central Traffic Circuit southwestward to the Schuylkill river at Grays Ferry bridge; the widening of Ridge avenue, from Thirty-third and Dauphin streets to Ninth and Vine streets and its extension to Fourth and Market streets; an avenue for commercial and general traffic purposes formed by the widening, extension and improvement of Delaware avenue and its connections along the Delaware river, from Poquessing creek to the Schuylkill river, and along the latter streams to Grays Ferry avenue; the extension of Kensington avenue, from Front and York streets to Broad street and Girard avenue; and the projection of a new avenue across the northeastern section of the City, from Frankford and Erie avenues to Broad street and Godfrey avenue.

The widening, extension and improvement of these avenues, together with others suggested by the general plan, would be of very great benefit to the circulation of general traffic by offering adequate and direct channels for its flow to and from important centers of industrial and commercial activity; their greatest usefulness would perhaps lie in the important part they would play in helping to solve the problem of rapid transit which now confronts the City, as they would provide ideal routes for the construction and operation of subway, surface or elevated street railway lines. Some such scheme as the Central Traffic Circuit and its four radiating avenues seems to be desirable, and even necessary, to provide for the proper


CITY OF PHILADELPHIA

circulation of traffic in the center of the City and in the vicinity of the great railroad terminals and its distribution to and throughout other sections of the City.

Other Work Directed and Supervised by the Bureau of Surveys in Preparing for the First Municipal City Planning Exhibition.

Supplementary to the general and special plans prepared by the General Plans Division, a considerable number of plans, architectural designs, and a model of the Parkway, illustrating special features of the proposed improvements, were made by the District Surveyors and by architects and other skilled craftsmen, under the direction and supervision of the Bureau of Surveys. A special appropriation of $15,000 was made by Councils to the Bureau for conducting this work.

Among the special features were architectural studies and drawings of the Parkway, the designs of special buildings on the same, and the preparation of a model showing these buildings and other proposed improvements along the Parkway, the working up from drawings of color sketches for the development of the Plaza and the adjacent South Broad street improvement, together with League Island Park, and also of a gateway at the foot of Broad street to the Philadelphia Navy Yard, and perspective sketch in color of the great proposed bridge across Wissahickon creek, on the line of Henry street.

This work gave employment to architects, artists and model constructors of a high grade of technical skill and artistic ability.

The Parkway Exhibit.

This included a general plan showing the lines of the Parkway as confirmed in 1909, and a proposed layout of

buildings and grounds adjacent to it from the City Hall to Fairmount Park; a plan of Fairmount Plaza and the Municipal Art Center, showing the ground plans of buildings and a general scheme for the development of the Plaza and its surroundings, and the hill now occupied by Fairmount Reservoir; a perspective of the Municipal Museum of Art and Fairmount Plaza, together with an elevation and section of the same, each a separate drawing.

The model of the Parkway is 23 feet long by five feet wide, and is constructed on a scale of 32 feet to the inch; the material is wood; the details of buildings are drawn and colored on heavy drawing paper and glued to wooden blocks; towers, terraces, monuments, balustrades and similar ornamental or decorative features are of carved hardwood. Forty buildings of various types were designed, detailed and modeled for the zone immediately adjacent to the Parkway, and the remaining area was covered by reproductions of existing buildings. The general scheme contemplates theatres, hotels, apartment houses and office buildings along the section between City Hall and Logan Square, educational institutions beyond Logan Square, and a great municipal museum and art center occupying the Fairmount reservoir site and surrounding the Plaza at the northwestern end.

These architectural studies and the model were designed and executed with the most painstaking care by men of exceptional skill in their profession, and were, perhaps, the most interesting and inspiring of the City's contribution to the Exhibition, as they represented intelligent forecasts of the future of one of the greatest undertakings the City is now engaged in, and one which, if carried out along the lines suggested by these plans, will contribute much to our reputation as a city of practical, progressive and broad-gauge accomplishment in the large affairs of modern municipal development.

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CITY OF PHILADELPHIA
ORIGINAL CONDITIONS
ALONG THE LINE OF
THE PARKWAY

CITY OF PHILADELPHIA
ORIGINAL CONDITIONS
ALONG THE LINE OF
THE PARKWAY

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MODEL OF THE PARKWAY—From City Hall to Fairmount Park.

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MODEL OF THE PARKWAY—From City Hall to Fairmount Park.

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MODEL OF THE PARKWAY—From Fairmount Park to City Hall.

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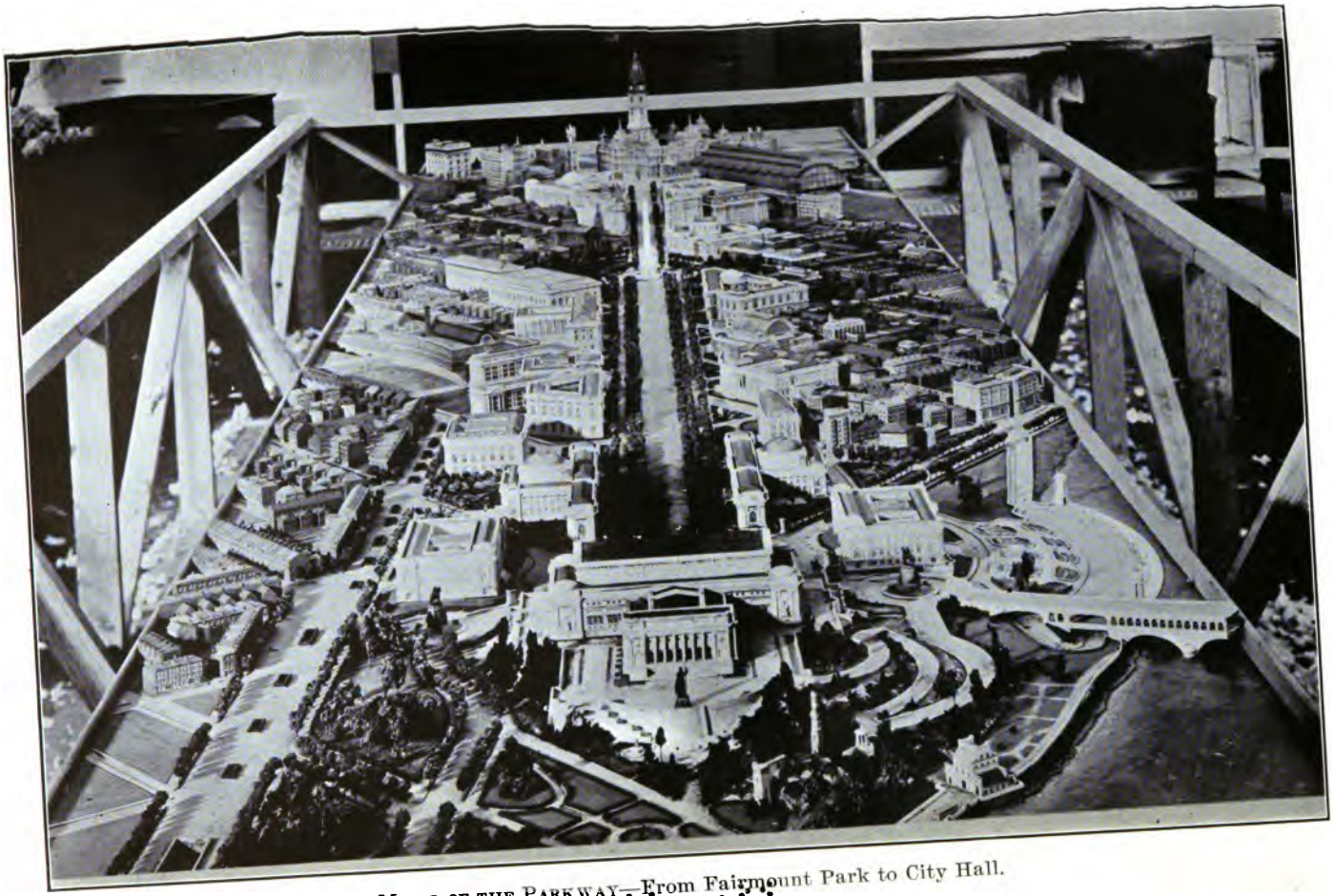

MODEL OF THE PARKWAY—From Fairmount Park to City Hall.

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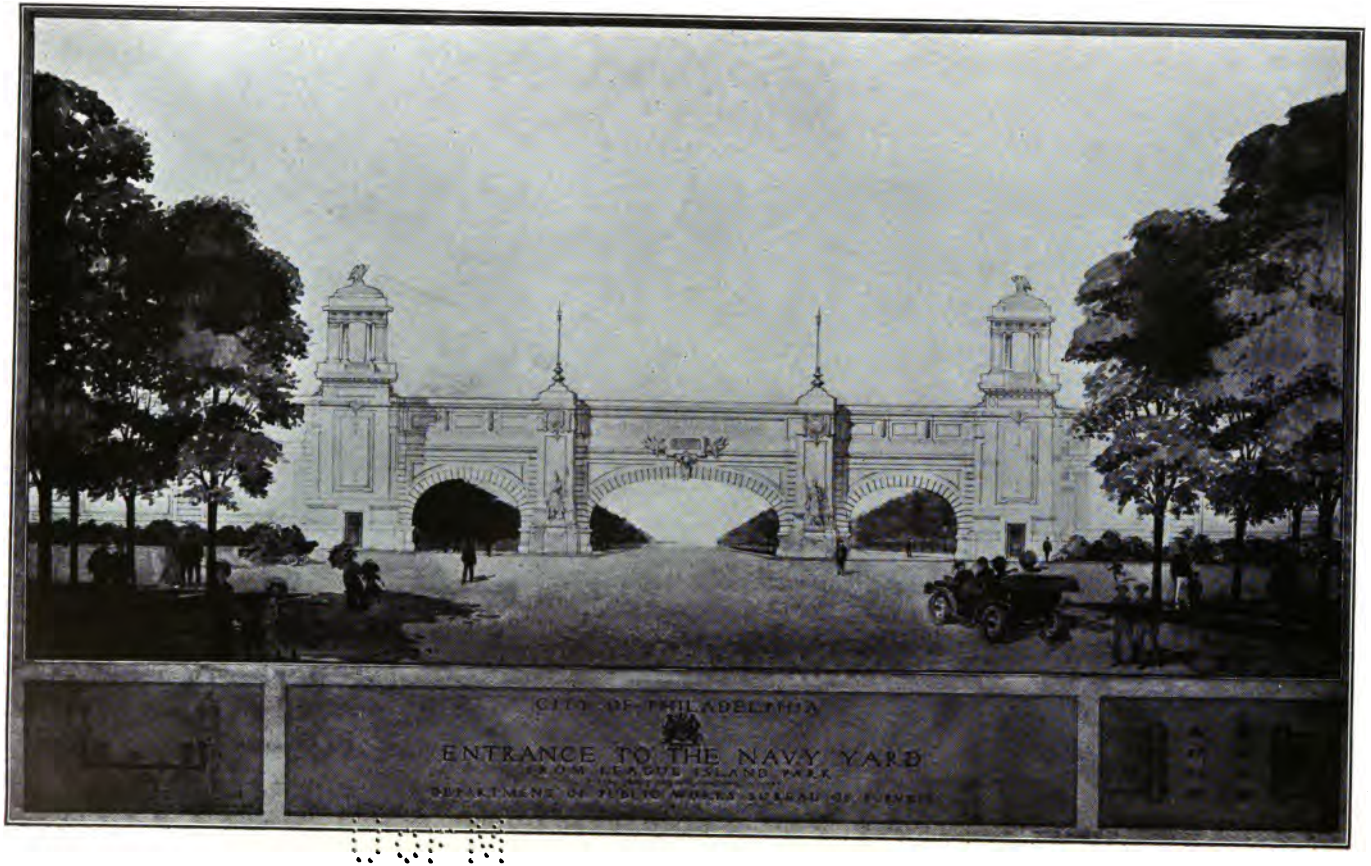
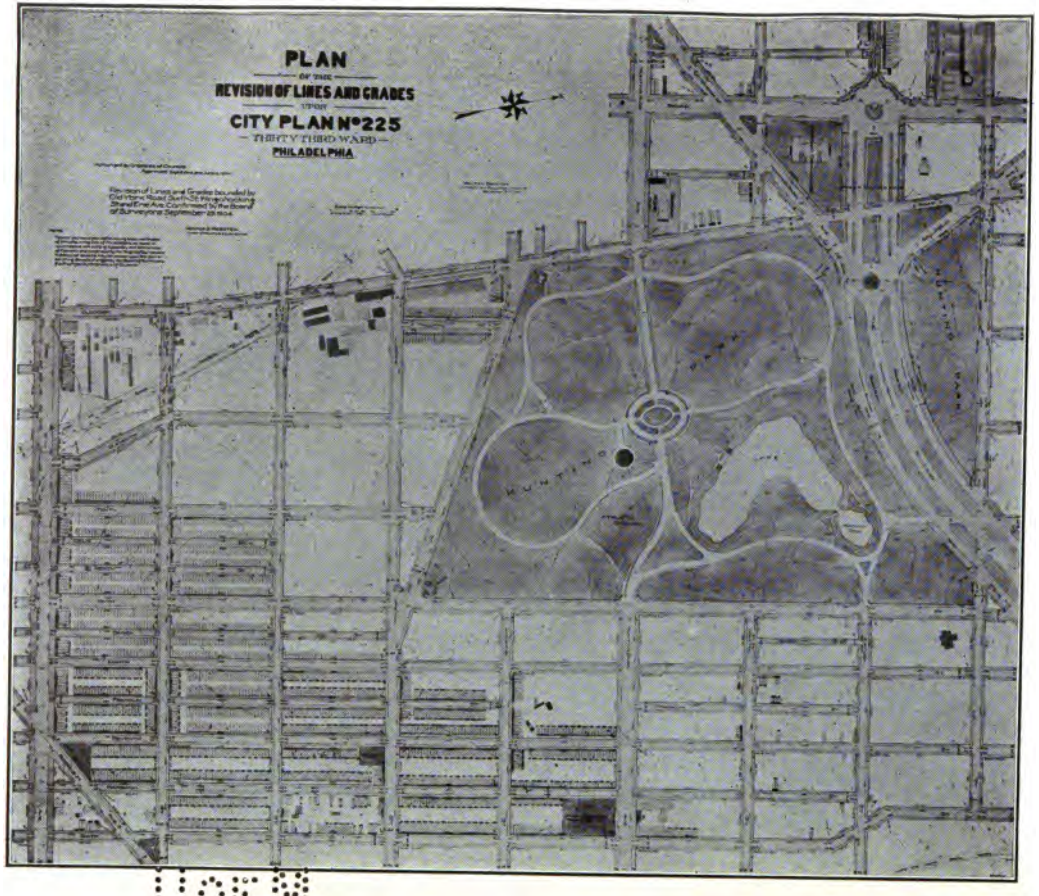

CITY OF PHILADELPHIA
ENTRANCE TO THE NAVY YARD
FROM LEAGUE ISLAND PARK
DEPARTMENT OF PUBLIC WORKS BUREAU OF PARKS

PROPOSED HENRY AVENUE CROSSING OF WISSAHICKON CREEK.

PROPOSED HENRY AVENUE CROSSING OF WISSAHICKON CREEK.


PLAN
OF THE
REVISION OF LINES AND GRADES
UPON
CITY PLAN N°225
THIRTY THIRD WARD
PHILADELPHIA

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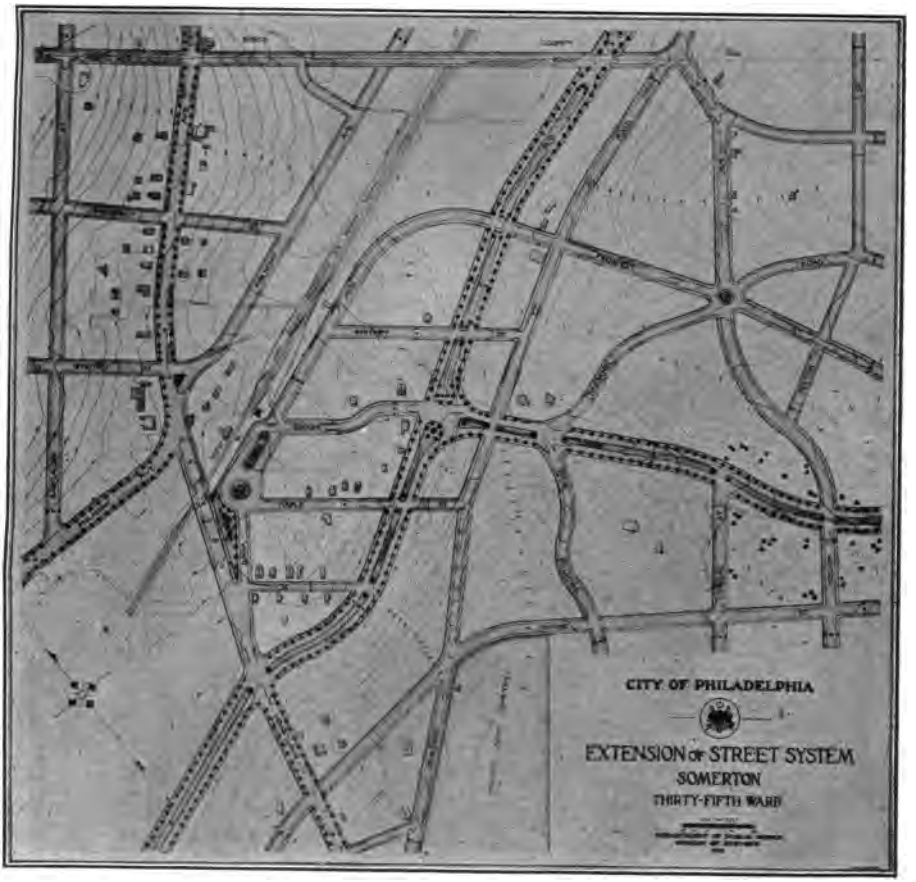
CITY OF PHILADELPHIA
EXTENSION of STREET SYSTEM
SOMERTON
THIRTY-FIFTH WARD

City Plans Exhibit.

There were also contributed to the Exhibition, by the District Surveyors, several copies of typical City plans, as made and confirmed by the Board of Surveyors: one showing the street system proposed for a growing suburban community, two showing the establishment of a system of main streets in a rural section prior to the commencement of building operations, one showing the establishment of streets and illustrating the gradual extension of the system of one-family houses over new territory, and one showing the street system and the intensity of improvement in completely built up areas.

This series of plans explains the legal and official procedure of establishing and extending the street system, and illustrates graphically the gradual growth of urban improvements.

There was also exhibited a typical plan showing method employed in keeping the record of underground structures in the streets of the City.

South Philadelphia Improvement.

Some progress has been made during the year in the negotiations with the railroad companies operating freight lines in South Philadelphia, looking to the rearrangement of their lines and the abolishment of grade crossings, in conformity with the general proposition set forth in the draft of a proposed ordinance submitted to them in October. 1910. Entire agreement with the plan proposed by the ordinance has not been accomplished, but the Pennsylvania Railroad Company has expressed a willingness to elevate the tracks of its Delaware Extension, from the Arsenal bridge over the Schuylkill river to Morris street, and of the Washington avenue branch, from near Grays

Ferry bridge to Broad street; also, to enter into an arrangement with the Baltimore and Ohio Railroad Company, whereby the business of the latter may be carried over the Delaware Extension lines. Negotiations are still in progress.

Revision of Streets in Suburban Territory.

The work of revising and extending the street system was interrupted to a considerable extent by the diversion of the office force to the preparation of the Comprehensive Plans; field work has progressed, however, and in the Twenty-first Ward surveys and plans have been completed for extending Henry street across the Wissahickon ravine and revising the street system in that vicinity and near the western approach to the Walnut lane bridge.

In the northeastern section of the City field work has been continued on the establishment of a secondary system of triangulation, the taking of topography and the making of surveys for the extension of the street system.

Park Extensions.

Considerable progress has been made in the extension of the park system and the acquisition of property for park and playground purposes.

An ordinance approved February 28, 1911, authorized the opening of Cobbs Creek Parkway, from Chestnut street to Locust street. An ordinance approved May 4, 1911, authorized the condemnation of about 35 acres of the unopened portion of Cobbs Creek Park and Parkway between Market street and the south line of Cedar avenue extended. An ordinance approved July 18, 1911, authorized the purchase of 24.117 acres of ground on both sides of Cobbs creek through Mt. Moriah Cemetery. An ordi-

nance approved July 29, 1911, authorized the opening of Cobbs Creek Parkway, 1.27 acres, from Fifty-eighth street to the line of Cobbs Creek Park. An ordinance approved December 2, 1911, authorized the placing upon the City plan of five tracts of land containing about 160 acres as an extension of Cobbs Creek and Morris Parks.

The following ordinances were approved, selecting and appropriating property for park and similar public purposes: May 3, 1911, 8.34 acres bounded by Chester avenue, Fifty-first street, Kingsessing avenue, Forty-ninth street and the West Chester Branch of the Pennsylvania Railroad, for park and playground purposes; June 29, 1911, small triangle in Sedgley avenue, Twelfth and Clearfield streets, to be improved as a public park; July 13, 1911, 3.2 acres at the northwest corner of Twenty-fifth and Diamond streets, condemned for a park, library site and playground for children; July 27, 1911, 2.82 acres on both sides of Lincoln avenue, from Johnson street to Wayne avenue, appropriated for park purposes; July 27, 1911, about 5.6 acres at Blair street and the Philadelphia and Trenton Railroad, condemned as a public playground; July 29, 1911, 3.638 acres, bounded by Morris, Twenty-sixth, Moore and Twenty-seventh streets, condemned as a public playground; July 29, 1911, a tract of about 42 acres, bounded by Frankford avenue, Comly and Charles streets, Dark Run lane and Willow and Foust streets, condemned for park purposes; August 4, 1911, 1.1 acres, bounded by Fifty-seventh street and Washington and Baltimore avenues, purchased for park purposes; August 18, 1911, a tract of about 4.7 acres, bounded by Olney avenue, Sixth and Tabor streets and the North Pennsylvania Railroad, condemned for park purposes; August 19, 1911, a triangle containing 0.06 acre at the intersection of Broad street and Oregon and Moyamensing avenues, condemned for municipal purposes; November 2, 1911,

2.92 acres, bounded by Fitzwater, Seventeenth, Catharine and Eighteenth streets, condemned for park purposes.

Fisher Park, containing 23.324 acres, at Fifth and Champlost streets, was conveyed to the City as gift by the heirs of Joseph Wharton, deceased, by deed dated December 31, 1910, and was confirmed upon the City plan June 19, 1911.

Wister's Woods Park, containing 36.7 acres, lying on the east side of the Germantown Branch of the Reading Railway at Duncannon street, placed upon the City plan July 1, 1907, and 7.5 acres, lying on the west side of the railway and not on the City plan, were condemned for public use December 1, 1911.

The total area of property acquired, or authorized by ordinance to be acquired, during the year, for park and playground purposes, was about 204 acres.

Abolishment of Grade Crossings along the Philadelphia, Germantown and Norristown Railroad and along the Richmond Branch of the Philadelphia and Reading Railway.

P. G. & N. Elevated.

The work at the opening of the year had progressed to such a point so as to enable the establishing the running of regular scheduled trains on two easterly elevated tracks between Green street and Berks street, and on the two westerly elevated tracks between Seventeenth and Indiana streets to Wayne Junction.

The first regular scheduled train to pass over the elevated structure left the Reading Terminal at 2.10 A.M., January 1, 1911, well filled with passengers.

The work between Green street and Wayne Junction is now practically completed, except the passenger stations at

DECK OF STEEL VIADUCT ON NINTH STREET, LOOKING NORTH FROM POPLAR STREET, MARCH, 1911.

General View Looking South from Atlantic Street, May, 1911.

Columbia avnue and Girard avenue, the permanent signal system between Green street and Broad street, the permanent telephone and telegraph system between Green street and Wayne Junction, the permanent tracks between Columbia avenue and Norris street, and the grading and paving of Girard avenue.

Ninth street has been graded, all underground structures laid, curb set, and paved with sheet asphalt and granolithic, thus making an improved public highway between Brown street and Jefferson street underneath the four track steel viaduct.

It is well to note in passing that no interruption to the regular scheduled trains occurred during the prosecution of the work, and the Board of Directors of the Philadelphia and Reading Railway Company, at their meeting in the month of December last, passed a set of resolutions commending the engineers connected with the work for the excellent manner in which the work was carried on and the rapid progress made; also the officials of the City for their co-operation in the work.

Richmond Branch Elevated.

All the work on this section has been placed under contract, and considerable progress was made during the year.

The bridge abutments, column footings and retaining walls for the four northermost tracks at Kensington and Frankford avenues, the grade of Coral street, Tusculum street, the easterly half of Frankford avenue between Tusculum street and Lehigh avenue, the northernly portion of Lehigh avenue from Frankford avenue to Amber street, has been completed, paving laid, and travel turned thereon.

The lowering the grade of the remaining portion of Frankford and Lehigh avenues is in progress. The

superstructure for the bridge over Frankford avenue, to carry the four northermost tracks, is now being erected.

The abutment and column footings for the bridges over Aramingo avenue, Belgrade and Thompson streets are well under way.

The work of lowering the grade of Kensington avenue and Lehigh avenue adjacent to Kensington avenue will be executed when the work on Frankford avenue is completed and that street thrown open for travel.

The following are the several contracts in detail. Those numbered from 1 to 100 inclusive are railway contracts, and those numbered from 100 to 120, City contracts:

P. G. & N. Elevated.

Contract No. 1.

Masonry, trestle and embankment from the south side of Green street to the south side of Brown street. Contractor, James McGraw Company. Bids received May 11, 1909. Work began June 1, 1909. Work was completed December, 1911. Inspectors, Frederick L. Brown, A. M. Robison, Alfred B. Lewis.

Contract No. 2 (Reletting).

Foundations for the steel viaduct from the south side of Brown street to the north side of Jefferson street. Contractor, James McGraw Company. Bids received October 18, 1909. Work began October 25, 1909. Work completed September 30, 1910. Inspectors, H. F. Krecker, A. L. Alderfer.

Contract No. 3.

Bridges and viaduct ready for ballast from the south side of Green street to the north side of Jefferson street.

TIOGA STREET—GRADE CROSSING BEFORE BEGINNING WORK.

Contractor, McClintic-Marshall Company. Bids received May 11, 1909. Work began June 1, 1909. Work completed December 30, 1911. Inspectors, Hildreth & Company, Harry F. Krecker, J. J. Young, Jr.

Contract No. 4.

Masonry, trestle and embankment from the north side of Jefferson street to the north side of Montgomery street. Contractor, Armstrong & Latta Company. Bids received June 9, 1909. Work began July 12, 1909. Work completed September 30, 1911. Inspectors, Oscar L. Morgenstern, Arthur F. Alderfer, E. T. Peters.

Contract No. 6.

Bridges ready for ballast from the north side of Jefferson street to the north side of Montgomery street. Contractor, Lewis F. Shoemaker & Company. Bids received June 9, 1909. Work began July 12, 1909. Work about completed December, 1911. Inspectors, Hildreth & Company, Harry F. Krecker, F. L. Brown.

Contract No. 9.

Masonry, trestle and embankment from the bridge at Seventeenth and Indiana streets to the south side of Tioga street. Contractor, Armstrong & Latta Company. Bids received June 15, 1909. Work began October 4, 1909. Work completed June 30, 1911. Inspectors, H. H. Green, Alfred B. Lewis, Daniel G. Aldrich.

Contract No. 10.

Masonry, trestle and embankment from the south side of Tioga street to the bridge over the Richmond Branch. Contractor, Enos L. Seeds. Bids received June 15, 1909.

Work began October 4, 1909. Work completed June 30, 1911. Inspectors, Arthur F. Alderfer, W. C. Hess.

Contract No. 11.

Bridges ready for ballast from Seventeenth and Indiana streets to the bridge over the Richmond Branch. Contractor, American Bridge Company. Bids received June 15, 1909. Work began October 4, 1909. Work completed November 29, 1911. Inspectors, Hildreth & Company, A. M. Robison.

Contract No. 12 (Reletting).

Masonry, embankment, paving, water and drainage systems, fence and gates, new office building, scale foundations, concrete steps and pavement for yard at Master street. Contractor, James McGraw Company. Bids received October 18, 1909. Work began October 25, 1909. Work completed October 31, 1911. Inspectors, J. J. Young, Jr., F. L. Brown.

Contract No. 14.

Masonry, embankment, and paving for yards between York street and Cumberland street. Contractor, Armstrong & Latta Company. Bids received December 17, 1907. Work began February 24, 1908. Work completed October 31, 1911. Inspector, A. F. Alderfer.

Contract No. 15.

Passenger station at Columbia avenue. Contractor, Irwin & Leighton. Bids received March 23, 1910. Work began April 27, 1910. Work is about 97 75/100 per cent. completed. Inspector, Robert B. Leech.

TIOGA STREET—GRADE CROSSING REMOVED.

Contract No. 16.

Passenger station at Tioga. Contractor, Enos L. Seeds. Bids received December 14, 1909. Work began January 10, 1910. Work is about 99 46/100 per cent. completed. Inspectors, Hildreth & Company, Joseph Scott, A. F. Alderfer, W. C. Hess.

Contract No. 17.

Passenger station at Nicetown. Contractor, Fred A. Havens & Company. Bids received December 14, 1909. Work began January 10, 1910. Work completed December 30, 1911. Inspectors, Hildreth & Company, Joseph Scott, W. C. Hess.

Contract No. 19.

Permanent signals, Green street to Broad street. Contractor, Union Switch and Signal Company. Bids received May 26, 1909. Work began July 12, 1909. Work is about 99 7/10 per cent. completed. Inspector, I. T. Kauffman.

Contract No. 38.

Two signal towers, one on eastern side of railroad at Brown street, and the other on eastern side of railroad at Jefferson street. Contractor, Thomas C. Trafford. Bids received September 1, 1909. Work began October 18, 1909. Work completed February 7, 1911. Inspector, Joseph Scott.

Contract No. 39.

Store house and engine out house changes, Green street yard. Contractor, George A. Glenn Company. Bids received December 14, 1909. Work began January 17, 1910. Work completed February 28, 1911. Inspector, Joseph Scott.

Contract No. 41.

Engine water supply, Green street yard. Contractor, Burd P. Evans. Bids received December 14, 1909. Work began January 8, 1910. Work completed February 28, 1911. Inspectors, Thomas F. Morris, Fred. L. Brown.

Contract No. 46.

Changes to coal yard at Hunting Park avenue. Contractor, Enos L. Seeds. Bids received November 29, 1910. Work began December 19, 1910. Work completed June 30, 1911. Inspector, Joseph Scott, W. C. Hess.

Contract No. 47.

Signal bridges, Green street to Norris street, and Seventeenth and Indiana streets to the Richmond Branch. Contractor, Lewis F. Shoemaker & Company. Bids received April 19, 1910. Work began May 16, 1910. Work completed November 29, 1911. Inspectors, Hildreth & Company, A. M. Robison.

Inspection of structural steel, waterproofing and paints. Contractor, Hildreth & Company. Bids received January 10, 1908. Work on the P. G. & N. Elevated practically completed.

RICHMOND BRANCH ELEVATED.

Contract No. 22.

Masonry and embankment between Somerset street and Trenton avenue. Contractor, John McMenamy. Bids received October 11, 1910. Work began November 10, 1910. Work is in progress and is about 80 per cent. completed. Inspectors, H. H. Green, Francis G. Ogborn, A. F. Alderfer.

Contract No. 23.

Bridges ready for ballast between Somerset street and Trenton avenue. Contractor, American Bridge Company. Bids received October 11, 1910. Work began November 10, 1910. Work is in progress and is about 72 per cent. completed. Inspector, Hildreth & Company.

Contract No. 24.

Masonry, walls and abutments between Trenton avenue and Richmond street. Contractor, James McGraw Company. Bids received May 10, 1911. Work began July 20, 1911. Work is in progress and is about 49 per cent. completed. Inspectors, W. C. Hess, F. B. Ogborn, L. Scott Twogood.

Contract No. 25.

Bridges ready for ballast over Aramingo avenue, Belgrade and Thompson streets. Contractor, American Bridge Company. Bids received May 10, 1911. Work began June 1, 1911. Work is in progress and is about 24 per cent. completed. Inspector, Hildreth & Company.

Contract No. 40.

Reconstruction of coal yards between Somerset street and Aramingo avenue. Contractor, John McMenamy. Bids received March 15, 1911. Work began April 10, 1911. Work is in progress and is 96 5/10 per cent. completed. Inspectors, R. B. Leach, H. H. Green, J. J. Young, Jr.

Contract No. 57.

Engine water supply, Frankford and Lehigh avenues. Bids received December 28, 1911, but contract has not been awarded.

Contract No. 58.

Reconstruction of coal yard between Aramingo avenue and Richmond street. Bids were received December 28, 1911, but contract has not been awarded.

Contract No. 112.

Grading, paving, repaving and appurtenant work in Lehigh avenue, Frankford avenue, Aramingo avenue, Belgrade street, Thompson street, and all adjacent streets affected by the change of grades. Contractor, James D. Dorney. Bids received October 13, 1910. Work began January 9, 1911. Work is in progress. Inspector, William Scarlett.

Contract No. 113.

Grading, paving, repaving and appurtenant work in Kensington and Lehigh avenues and all adjacent streets affected by the change of grade. Contractor, McNichol Paving and Construction Company. Bids received October 13, 1910. Work began May 15, 1911. Work in progress. Inspector, Joseph Hunter.

Contract No. 114.

For furnishing and delivering electrical, aerial cable and appurtenances. Contractor, Walker & Kepler. Bids received August 15, 1911.

Statement of Expenditures, from inception of work to October 31, 1911, in connection with the Abolishment of Grade Crossings along the Philadelphia, Germantown and Norristown Railroad between Green street and the Richmond Branch, and along the Richmond Branch of the Philadelphia and Reading Railway between Somerset street and Richmond street.

P. G. & N. Elevated.

Contracts	$4,976,165 46	
Emergency work	718,738 68	
Real estate and damages	345,046 19	
General and engineering	314,306 85	
		$6,354,257 18
Payable as follows:		
P. & R. Ry. Co.	$3,710,387 48	
City of Philadelphia	2,643,869 70	
		6,354,257 18
Difference due to betterments	$1,066,517 78	

Statement of Funds Available.

Loan of May 18, 1904 (Item 23, 1910)	$1,000,000 00	
Expenditures	1,000,000 00	
Loan of October 1, 1906 (Item 27, 1911).	2,500,000 00	
Negotiated	1,800,000 00	
		700,000 00
To be negotiated	$700,000 00	
Loan of October 1, 1906 (Item 27, 1911)	$1,800,000 00	
Expenditures	$1,412,538 70	
Charged off for Contract No. 108	40,384 50	
Charged off for Contract No. 110	18,762 92	
Charged off for Contract No. 111	11,953 44	
	1,483,639 56	
		316,360 44
Payments made by P. R. T. Co. (Item 28A, 1910)	231,331 00	
Expenditures	231,331 00	
Amount available October 31, 1911		$1,016,360 44

Richmond Branch Elevated.

Contracts	$358,568 56	
Emergency work	85,793 06	
Real estate and damages	28,984 95	
General and engineering	71,259 71	
		$544,606 28
Payable as follows:		
P. & R. Ry. Co.	$319,905 59	
City of Philadelphia	224,700 69	
		544,606 28
Difference due to betterments	$95,204 90	

Statement of Funds Available.

Loan October 1, 1906		$1,500,000 00	
Negotiated		775,000 00	
			725,000 00
To be negotiated		$725,000 00	
Loan October 1, 1906 (Item 15, 1911), negotiated		775,000 00	
Expenditures	$215,062 99		
Charged off for Contract No. 112	263,321 65		
Charged off for Contract No. 113	176,196 31		
		654,570 95	
			120,429 05
Payments by P. R. T. Co. (Item 15A, 1911)		$9,637 70	
Expenditures		9,637 70	
Amount available October 31, 1911			$845,429 05

Bridges.

The work of bridge construction during the year consisted of completing ten contracts which had been commenced previously, and commencing six others, none of which were completed, five of them having been interrupted by winter weather, and the remaining one—N street bridge—being suspended awaiting the completion of the railway company's share of the work.

The bridge division of this Bureau also made the contract plans and specifications for the reconstruction of the Forty-seventh street bridge over the West Chester and Philadelphia Railroad, the contract for which was made in the Bureau of Highways and paid out of its repair fund.

The funds available for new bridge work, together with the expenditures during the year and the balances remaining, are as follows:

	Unexpended balances, Jan. 1, 1911	Balance available for new bridges, Jan. 1, 1911	Appropriated during 1911	Recredited during 1911
Item 16—New bridges—loan of April 15, 1908	$92,331 02	$70,264 42		$5,258 22
Item 17—Passyunk avenue bridge—loan of April 15, 1908, balance of Item 17, 1910	48,915 43			
Item 18—New bridges—loan of May 18, 1904, balance of Item 18, 1910	3,941 04	1 59		2,317 78
Item 23B—Widening Chestnut street bridge, loan of July 14, 1910, balance of Item 34B	90,000 00	90,000 00		
Item 25, Wissahickon avenue bridge, over Richmond Br., balance of Item 32, 1910	2,114 05			2,097 88
Item 26—New bridges, loan of February 9, 1907, balance of Item 28, 1910	128,889 39	29,408 26		19,769 48
Item 37—Improvement of Cedar and Baltimore avenues			1,000 00	
Item 38—Physical widening and raising grade of Chestnut street, Twenty-second street to Schuylkill river			40,000 00	315.75 merging

*Note.—The amounts paid for inspection on account of contracts were charged to the contractors and were deducted from the final estimates, being in cases where the contracts included the cost of inspection.

Items	Payments on contracts	Expended for engineering, inspection, transportation, borings, etc.	Unexpended balances, Dec. 31, 1911	Balances available for new bridges, Jan. 1, 1912.	*Paid for inspection on account of contracts
Item 16	$32,151 90	$2,782 40	$55,947 62	$15,203 24	$1,450 00
Item 17	48,915 43				
Item 18	1,468 33	46 66	2,272 71	2,272 71	153 34
Item 23-B	36,861 34	153 75	52,099 91	9,846 25	895 00
Item 25	16 67				
Item 26	77,265 19	4,401 15	45,903 05	22,371 48	820 00
Item 37	420 76	108 00	471 24	92 00	
Item 38	4,150 08	684 25	35,165 67		

The following bridges were under contract at the beginning of the year, and are now completed:

Boulevard, over Philadelphia, Newtown and New York Railroad.

Hunting Park avenue, over Philadelphia, Newtown and New York Railroad.

Hunting Park avenue, under Chestnut Hill Branch of Pennsylvania Railroad.

Roberts avenue, under Chestnut Hill Branch of Pennsylvania Railroad.

Fox street, over Norristown Branch of Philadelphia and Reading Railway.

Fox street, over Richmond Branch of Philadelphia and Reading Railway.

Wissahickon avenue, over Richmond Branch of Philadelphia and Reading Railway.

Tabor street, under Tabor Branch of Philadelphia and Reading Railway.

Tabor street, under North Penn Branch of Philadelphia and Reading Railway.

Walnut lane, over Wissahickon creek.

Passyunk avenue, over Schuylkill river.

BOULEVARD BRIDGE OVER NEWTOWN RAILROAD.

Of the above all have been finally paid for except the Hunting Park avenue bridge under the Chestnut Hill Branch of the Pennsylvania Railroad, where the final estimate is awaiting the contractor's settlement with the railroad company for sub-contract work.

N Street Bridge Under Connecting Railway.

The superstructure of the N street bridge under the Connecting Railway was placed under contract in 1910, but work on it was not commenced until the railroad tracks had been shored up by the railroad company, and it was completed during the year as far as practicable until after the erection of the superstructure, which is now in progress by the railroad company, the furnishing and erecting of the superstructure being done by the company at its own expense as its contribution (estimated to be one-half) to the cost of the whole improvement. The contract price of the City's portion of the work—grading the street and building the masonry—is $39,757. The contractor is Richard Walsh. The bridge will open up a new avenue of travel across the railroad between Kensington and Frankford avenues, nearly in line of Erie avenue.

BRIDGES COMPLETED.

Boulevard Over Philadelphia, Newtown and New York Railroad.

Work on this bridge was suspended for over two years to await the grading of the approaches, which was completed during the past year. It is 100 feet wide, 60 feet clear span, reinforced concrete arch, with ornamental concrete balustrade. The railroad paid one-third the cost of the bridge because of its obligation to maintain a crossing on line of Old Fishers lane. Total cost, $41,668.60, of

which the City paid $27,779.07. The final estimate was drawn November 21, 1911. Contractor, Richard Walsh. Inspector, B. F. Slack.

Hunting Park Avenue Over Philadelphia, Newtown and New York Railroad.

The curbing and paving were deferred for more than a year, until the grading of the avenue east and west of the bridge should be finished. It is a reinforced concrete arch, 60 feet clear span, with ornamental concrete balustrade. Total cost, $38,909.89. The final estimate was drawn November 21, 1911. Contractor, Thomas F. Reilly. Inspectors, C. C. Anderson and John McParland.

Fox Street Over Richmond Branch of Philadelphia and Reading Railway.

The curbing and paving on this bridge had been deferred until the approaches would be graded and settled. It is a reinforced concrete arch, 70 feet clear span, 70 feet wide, with ornamental concrete balustrade. Total cost, $27,731.30. The final estimate was drawn November 24, 1911. Contractor, the Millard Construction Company. Inspector, John J. Hart.

Walnut Lane Over Wissahickon Creek—Lamp Posts, Grading and Fencing.

The lamp posts which are set on the end piers of the balustrade are of bronze and very elaborate in design. They are each provided with five lamp globes. The combination trolley poles and electric light poles over the main piers are of ornamental iron, and are provided with two arc lights each. The fences protect the edges of the high embankments of the approaches. Total cost, $9,903.15.

HUNTING PARK AVENUE BRIDGE OVER NEWTOWN RAILROAD.

PASSYUNK BRIDGE—WEST PORTAL.

Final estimate was drawn April 12, 1911. Contractor, George B. Clopp. Inspector, Thomas D. Hooper. The total cost of this bridge with the grading of both approaches was $269,443.06.

Roberts Avenue Under Chestnut Hill Branch of Connecting Railway.

This operation was delayed twice by the necessary work of the railroad company, first in raising the grade of the railroad and again in the erection of the steel superstructure. The Pennsylvania Railroad Company pays one-half of the total cost of the bridge. It is a three-track railroad bridge of steel plate girders with solid ballasted floor on ornamental concrete abutments. Total cost, $32,977, of which the City's share was $16,488.50. The final estimate was drawn December 29, 1911. Contractor, Filbert Paving and Construction Company. Inspector, John McParland. This bridge will open a new line of travel across the railroad, affording additional communication between Nicetown and the Falls of Schuylkill. The street east and west of the bridge has not been graded, but the work is under contract in the Bureau of Highways.

Passyunk Avenue Bridge Over Schuylkill River.

The structure of this bridge is finished, but is not available for public use until the west approach on Passyunk avenue shall be graded from the intersection of Sixty-third street to the bridge. The grading is under contract in the Bureau of Highways, and is in active progress. There have been five contracts on this bridge. The first in 1904, for the west abutment and Piers 1, 2, 3 and 4 built on pile foundations. Cost, $53,063.43. Contractor, David Peoples. The second, Piers Nos. 9 and 10, constructed by

compressed air process, was finished in April, 1909. Contractor, the Filbert Paving and Construction Company. The third, for Piers 5, 6, 7, 8 and 11, on wood pile foundations, was finished in November, 1909. Cost, $49,530.20. Contractors, McGaw & Gray. The fourth, for the superstructure and including the grading of the east approach, was completed in October, 1911. Cost, $323,163.70. Contractor, the Strobel Steel Construction Company, Chicago, Ill. The fifth was for an additional wooden pile fender in the river for the better protection of the structure against passing vessels, and included the removal of a portion of the old unused wooden wharf structure on the east side under the bridge, which would be liable to injure the bridge in the event of its taking fire, and included also stone riprapping of the fender and the river bank to prevent scour. Cost, $3,937.17. Contractor, W. S. P. Shields. Total cost of bridge and east approach, $588,336.95.

Tabor Street Under North Pennsylvania and Tabor Branch Philadelphia and Reading Railway.

The two bridges on line of Tabor street under the Tabor and North Penn branches of the Philadelphia and Reading Railway reopened this avenue to travel without grade crossings of the railroads. The bridge contract included the grading of the street to its full width and the macadamizing of a 16-foot strip of the driveway. The bridge carrying the Tabor Branch is a three-track steel plate girder structure with solid floor and spans the full width of the street. The bridge on the North Penn Branch carries two tracks. The masonry is concrete with ornamental terra cotta trimmings. The work had been completed and opened to public use in 1910, with the exception of a little grading. The total cost was $72,047.05. Date of final

PASSYUNK BRIDGE—DRAW OPEN.

FOX STREET BRIDGE, Over Norristown Branch, Philadelphia and Reading Railway.

estimate, May 9, 1911. Contractor, McNichol Paving and Construction Company. Inspector, John J. Hart.

Wissahickon Avenue Over Richmond Branch of the Philadelphia and Reading Railway.

The reconstruction of the Wissahickon avenue bridge over the Richmond Branch was completed in 1910, with the exception of a little work required to restore the condition of adjacent private property. It replaces an old narrow bridge that had become dangerous to travel through the widening of the street. The Philadelphia and Reading Railway Company paid five-sixths the cost of reconstructing the bridge because of its obligation to provide a bridge for the original width of the street—50 feet, the City's share—one-sixth—being for the additional 10 feet to make it the full width of the avenue. Some additional work was done in the grading of the street, for which the railroad company was not liable, and was paid for wholly by the City. The total cost was $12,535.70, of which the City paid $2,942.62. Date of final estimate, May 31, 1911. Contractor, Owego Bridge Company. Inspector, Daniel Walsh. The bridge is a steel structure, entirely encased in concrete and effectively protected against corrosion by locomotive gases.

Fox Street Over the Norristown Branch of the Philadelphia and Reading Railway.

Work was suspended on this during the winter weather. Street traffic was maintained during the whole time of construction on a temporary by-pass bridge. The bridge replaces an old narrow wooden structure. It has three spans composed of steel beams encased in concrete with ornamental concrete parapet. Driveway, 36 feet wide,

paved with asphalt, and two sidewalks, 12 feet wide, of granolithic. The foundations were carried to a depth that will permit the future lowering of the railroad 12½ feet when the grade crossings of Twenty-second street and Allegheny avenue are to be abolished. The Philadelphia and Reading Railway Company paid one-half of the cost of the bridge. Total cost, $35,468.71, of which the City paid $17,734.36. The final estimate was paid October 10, 1911. Contractor, Richard Walsh. Inspector, David S. Moore.

Hunting Park Avenue Under Chesnut Hill Branch of Connecting Railway.

The bridge on line of Hunting Park avenue under the Chestnut Hill Branch of the Connecting Railway, on which work was delayed by the railroad company in erecting the steel superstructure, was completed during the year, but the final estimate has not been drawn, the claims of the railroad company against the contractor for work done by the company still awaiting adjustment. The bridge is a double track steel plate girder structure with solid floor on ornamental concrete abutments. It replaces a former bridge, and was made necessary by the widening of Hunting Park avenue. The total cost will be $32,750, of which the City's share will be $16,375. Contractor, John McMenamy. Inspectors, George W. Graham and John J. Hart.

The following contracts were awarded during the year, and work was commenced on all except the one for the painting of the old portion of the Chestnut street bridge over the Schuylkill river, which was made too late in the year:

Widening Chestnut Street Bridge over Schuylkill river.

Physical widening and raising of grade of Chestnut street from Twenty-second street to the Schuylkill river.

Improvement of the intersection of Cedar and Baltimore avenues.

Kingsessing Avenue Footbridge over West Chester and Philadelphia Railroad.

Springfield Avenue Bridge under West Chester and Philadelphia Railroad.

Fifty-second Street Bridge over West Chester and Philadelphia Railroad.

Widening Chestnut Street Bridge.

Work on the two contracts for widening the Chestnut Street Bridge and the approaches to it has been interrupted by the severe winter weather. It is expected to be completed in May next. Meanwhile, vehicle travel is being maintained eastbound over the bridge and pedestrian travel in both directions. The two operations consist of increasing the width of the driveway from Twenty-second street to Thirtieth street, making it 36 feet instead of 26 feet, as formerly, and of widening the sidewalks on the bridge and approaches, making them nine feet instead of eight feet, as formerly. Between Twenty-second street and Twenty-fourth street, Chestnut street is being widened to the full City plan width of 70 feet, by cutting back the existing buildings abutting on it, and the grades of Chestnut street and the adjacent streets are being raised to the etsablished elevation, the change at the intersection with Twenty-third street being four feet. The increased width of driveway will relieve the congestion of vehicle and street car traffic, which has for many years caused delay and annoyance to the public having to use the bridge.

The painting of the old iron portion of the bridge was not included in the contract for widening the deck because

of the uncertainty as to the sufficiency of the appropriation. The contract for the widening left an available balance of $9,846.25, out of which the cost of the painting, $1,700, will be paid. The total cost of the widening of the bridge and the west approach will thus be about $81,800, for which $90,000 was provided in the loan of July 14, 1910, and the total cost of the physical widening and grading and repaving east of the river, exclusive of property damages, will be about $38,000, to be paid out of Item 38. The contractors for the widening of the bridge and west approach are M. & J. B. McHugh. The contractor for painting the bridge is Charles S. McNally. The contractor for the widening and grading of Chestnut street is the American Paving and Construction Company.

Improvement of Intersection, Cedar and Baltimore Avenues.

The improvement of the intersection of Cedar and Baltimore avenues, which was interrupted by freezing weather, and is about three-fourths done, consists of grass plats, granolithic sidewalks and curb, and an ornamental fountain. The total cost, including the cast iron fountain, will be $893. Contractors, Cullen & Regan.

Springfield Avenue Bridge Under West Chester and Philadelphia Railroad.

The bridge on line of Springfield avenue under the West Chester and Philadelphia Railroad is a double-track steel plate girder railroad bridge of three spans. It opens up a new avenue of travel in a neighborhood that is being built up with a good class of dwelling houses, a large operation having been commenced since work on the bridge was

started. The work yet to be done consists of completing the grading and paving of the streets and sidewalks, and the concreting of the finials of the abutments, but it has been suspended until spring on account of the winter weather. The contract price is $32,470. Contractor, Donato Delise.

Kingsessing Avenue Footbridge over West Chester and Philadelphia Railroad.

The bridge on the line of Kingsessing avenue over the West Chester and Philadelphia Railroad is a steel and concrete footbridge, eight feet wide clear footway, of 72 feet span. It is completed, except the final coat of paint, and has been in use by the public since early in December, 1911. Total cost, $2,542. Contractor, F. J. Boas. Inspector, Daniel Walsh.

Fifty-second Street Bridge Over West Chester and Philadelphia Railroad.

The work on the Fifty-second Street Bridge over the West Chester and Philadelphia Railroad consists of an extension to the abutments and steel structure of the present bridge to make it the full width of the street, and includes the concreting and asphalt paving of the existing portion, which is only one-half the width of the street and was built in 1902, having had a temporary wooden floor. The whole of the steel work, both old and new, will be encased in concrete to protect it from corrosion, and the cost of maintenance in the future should be confined to the paving. The original half bridge cost $29,154.14. The price for completion, under the present contract, is $24,735. The contractor is the American Paving and Construction Company. The work is suspended on account of freezing weather, with about 20 per cent. of the field work done.

The Widening of Delaware Avenue.

The actual work on the reconstruction of the outlet sections of the sewers at Vine and South streets, incident to the widening of Delaware avenue at these localities, was commenced during the year 1910.

The ordinance of April 1, 1899, authorized the opening of the widened Delaware avenue, from Vine street to Green street.

The ordinance of December 3, 1908, appropriated the sum of $500,000 from the loan created by ordinance of February 9, 1907, to the Department of Public Works, Bureau of Surveys, for acquiring property and improving Delaware avenue to its full width. The ordinance of March 29, 1909, authorized the opening and the widening of Delaware avenue and the work appurtenant thereto between Vine street and Fairmount avenue and Penn street, and between South and Christian streets.

The necessary property on the east side of Delaware avenue, between Vine and Callowhill streets, was purchased in accordance with ordinance of December 3, 1908, and a piece of ground on the south side of South street and the east side of Delaware avenue, necessary for the widening of the avenue at this locality, in accordance with ordinance of March 29, 1909.

The construction of the bulkhead wall at South street and at Vine street by the Department of Wharves, Docks and Ferries made necessary the rearrangement of the outlet portions of the sewers at these places, that at South street being the first taken up.

The Department of Wharves, Docks and Ferries being responsible only for the actual bulkhead construction, the filling in of the abandoned portions of docks and waterways behind the new bulkheads, the rearrangement of the sewers and the grading and paving of the widened avenue

devolved on this Bureau. The work at South street consisted in rebuilding the outlet section of the South street sewer, formerly discharging into the dock through a wooden trunk built across Delaware avenue, by replacing it with a rectangular concrete sewer on piles and platform foundation and opening through the new concrete bulkhead wall. In order to intercept the flow of sewage in this sewer and carry it out to the pierhead line, instead of allowing it to discharge in the head of the dock as formerly, an intercepter was built in the South street sewer at Front street, and a vitrified pipe sewer was built from it in Front street, connecting with the sewage system at Pine street; also, the filling in, grading and paving of the avenue as appurtenant work. Owing to the fact that the final location of steam railroad tracks had not been definitely settled, this paving is of a temporary character and a concrete base was not used under it.

Plans and specifications for the work were drawn and advertised June 1, 1910, and it was awarded to the Lombardi & Pascuzzi Company, Incorporated, the lowest bidder, under contract No. 19 of the Delaware avenue improvement, dated June 16, 1910. Limit of contract, $22,000. The work was done at unit prices for the various items of the construction required. The contractor was notified to begin June 30, 1910. Work was started on July 21, 1910, and was completed April 29, 1911. The intercepter in Front street, consisting of 12-inch and 24-inch vitrified pipe sewer in concrete, with appurtenant manholes and connections, and 31.5 lineal feet of the rectangular concrete sewer, size, six feet by eight feet, with steel beam and concrete top have been built. The abandoned docks and waterways behind the new bulkhead and south from sewer have been fillled in and an approach to the new ferry house has been paved with granite blocks on gravel base.

The contractor has been paid on current and final estimates the sum of $21,707.11. Inspectors, C. A. Crossin on the work at Delaware avenue, and E. H. Sickels on the Front street intercepter.

The construction by the Department of Wharves, Docks and Ferries of the new bulkhead north from Vine street made necessary a readjustment of the outlet section of the Vine street sewer, then discharging into the head of the dock. Plans were prepared to extend this sewer along the westerly side of Delaware avenue northward from Vine street to a point opposite the new Vine street pier, and to carry it out under the pier so that it could discharge near the pierhead line, thereby freeing the dock of any deposit of sewage.

Bids for the construction of this sewer, with the appurtenant filling in behind the new bulkhead and the temporary grading and paving of the widened avenue, as was the case at South street, were received July 20, 1910, and award was made to the McNichol Paving and Construction Company, the lowest bidder, under contract No. 20, Delaware avenue improvement, dated August 2, 1910. The limit of contract was $37,000. The work was done at unit prices for the various items of the construction required.

The contractor was notified to proceed August 17, 1910. The work was started September 19, 1910, and was completed December 1, 1911. One hundred and twenty-five and one-half lineal feet of circular brick sewer, three feet six inches in diameter, in reduced concrete cradle on a pile and platform foundation, together with 48 lineal feet of sewer three feet in diameter, were built. The docks have been filled in, portions of the old avenue repaved and the widened portion paved with granite blocks on a gravel foundation. The contractor has been paid on current and

final estimates the sum of $32,526.19. Inspector, J. W. Silliman.

In connection with the work at South street, the rebuilding of an electrical manhole and the relaying of electrical ducts and repaving were required. A contract for this work was entered into under date of October 11, 1911, with Frederick T. Buckius. The amount of contract was $485, final estimate on which equal to the above figure was paid on December 11, 1911.

Testing Laboratory.

The amount and scope of the work performed by the Testing Laboratory during the year 1911 is shown by the following list of tests made:

Portland cement	1,450	Paint	19
Concrete cubes	98	Cast iron	1
Coal	402	Crushed stone	6
Paving brick	30	Wire rope	2
Lubricating oil	161	Building cement	1
Illuminating oil	18	Plaster board	1
Asphalt	59	Chimney tile	3
Waterproofing compounds	6	Turpentine	9
Concrete blocks	2	Terra cotta pipe	4
Gravel	2	Asphalt mastics	2
Red lead	6	Alcohol	2
Linseed oil	10	Elevator stirrups	1
Steel bars	11	Elevator draw bars	1
Building stone	1	Gasoline	9
Building brick	2	Creosote	1
Fuel oils	2		
Sand	21	Total	2,343

The total number of tests made was 402 less than the year preceding, the difference being chiefly in the cement tests, which were 529 less than in 1910, owing to the smaller amount of construction work performed. The tests, exclusive of cement, however, show an increase of 127, indicating the extension in the scope of the laboratory.

The decrease in the cement tests makes the economic standing of the laboratory less favorable than in former years. The value of the work, however, measured by current commercial prices, aggregates $15,326, while the cost of maintaining the laboratory is less then $12,000, giving a direct saving to the City of over $3,300, without considering the many advantages obtained by having the laboratory at the constant service of the City.

Each material examined is tested in full in accordance with the standard methods to ascertain whether it fulfills every requirement of the specifications. The routine work forms only a part of the work, however, as investigations are continually being made to secure a better knowledge of the materials used and to obtain more efficient methods of testing. The drafting of specifications for materials is also becoming a more important phase of the laboratory work.

The laboratory has an enviable reputation throughout the country, and its methods of testing and data of tests are frequently being sought by engineers from other cities.

Following is the customary table showing the average results of the cement tests made during the year:

Registry Division.

The work done in the Registry Division is as follows:

Number of certificates of registered owners issued to the public	4,927
Number of certificates of registered owners issued to Law Department	367
Number of liens issued to Law Department	788
Number of searches run for Department of Tax Receiver	133
Credit value of searches and liens run for Departments	$322.00
Cash paid Receiver of Taxes for searches	$1,225.75
Cash paid Receiver of Taxes from miscellaneous sources	$87.50
Total number of certificates, searches, liens, etc	6,215
Number of descriptions filed for registry	57,206
Number of registry plan books examined	79,840
Number of original lots plotted in registry plan books.	12,039
Number of transfers entered in registry plan books..	45,167
Number of titles perfected and erroneous descriptions corrected	1,848
Number of blue print plans made for Departments and Bureaus	638
Number of affidavits for opening of streets considered and approved	25
Number of streets ordered on City plans, revisions of grades, vacations, etc.	125
Number of Road Jury plans ordered	94
Number of deeds of dedication, releases, etc., received	132
Number of deeds, releases, etc, recorded	165
Amount paid for recording deeds, releases, etc	$465.80
Number of stub books completed	3
Number of certificates, legal opening of streets	1,597
Number of descriptions filed in stub books	213
Number of descriptions filed under card case system..	91,786
Total number of descriptions filed in stub books	1,274,678
Number of new plan pages made for registry plan books	100
Number of pages rewritten for registry plan books....	634
Number of plan books repaired	97
Number of plan pages cleaned and re-inked	171
Number of descriptions replotted	1,763
Number of new City plans made from worn out plans..	2
Number of tracings of new City plans	7
Number of index plans made	5
Number of index plans cleaned and relettered	5
Number of plan books rebound	17

The work in the Registry Division shows a slight increase over the previous year, but as its work reflects the condition of the real estate market, which, dependent as it is on liberal appropriations by Councils for street improvements, which were not forthcoming, was somewhat inactive, hence the falling off in transfers of lots and searches.

Concluding Remarks.

In summing up the work for the year, it appears that there has been a considerable decrease in the amount of construction in certain lines as compared with that accomplished in former years, the reason for which is that in 1910 scarcely any money was appropriated for certain work, and in 1911 appropriations were made too late to permit of the completion of work authorized. This is particularly true of the work of building sewers, and partially true concerning bridge building.

The work of the abolishment of grade crossings, however, was carried on with vigor, without interruption, and distinctive results were obtained.

In the matter of comprehensive plans for the development of the City, it is worthy of note that the first City Planning Exhibit, together with the convention of city planning experts, was held in this City from May 15th to June 15th last.

The exhibit brought together many projects from both foreign and domestic cities, including other matters allied with this subject, such as better housing facilities, suburban gardens, architectural improvements, subways, port development, parkways and parks, street widening and extensions and artistic treatment of civic centers.

The work performed in the various district offices, owing to the amount of street paving and repaving in progress, was such as to tax these offices to their capacity.

Apart from the construction work actually under way, much was performed in the way of designing projected work by the officials of the Bureau, which is equipped with men skilled and conversant with the best practice in the work of the constructions which are comprised under the heading of Municipal Development.

The prompt performance of the work of the Bureau has been facilitated by the support of the heads of the Department, in the indorsement of projects, approval of methods, and in the judicious selection of men appointed to positions.

Tables are appended showing in detail the work described and enumerated herein.

Yours respectfully,

GEO. S. WEBSTER,
Chief Engineer and Surveyor.

Bureau of Surveys—Appropriations for 1911—Balance Sheet.

		Appropriations, balances and transfers	Available appropriations,	Expended	Balance merging	Balance not merging
1	For salaries, general office, registry bureau and engineer corps	$80,280 00				
	Additional appropriation, June 21, 1911	1,633 32				
		$81,913 32				
	Transferred from, November 22, 1911	1,500 00				
			$80,413 32	$79,563 36	$849 96	
1b	For salary of assistant permit clerk, from July 1, 1910—loan July 14, 1910, appropriation July 29, 1910					
	Balance Item 1B, 1911		112 90			$112 90
2	For renewing plans and descriptions in registry bureau	4,500 00				
	Transferred from, November 22, 1911	150 00				
			4,350 00	4,350 00		
3	For cleaning office, carriage hire, advertising and miscellaneous expenses, for recording deeds of dedication	$1,200 00				
	Transferred to, November 22, 1911	1,400 00				
			2,600 00	1,601 47	256 53	742 00
4	For salaries and expenses district surveyors:					
	For salaries of district surveyors		56,000 00	56,000 00		
	For wages of employees, rent, postage, horse keep and miscellaneous expenses		162,000 00	155,719 02	6,280 98	
4b	For rent, postage and miscellaneous expenses in the survey districts, loan July 14, 1910, appropriation July 29, 1910, balance Item 4b, 1910		9,706 12	9,706 12		
5	For examination of bridges and sewers		500 00	498 62	1 38	

Bureau of Surveys—Appropriations for 1911—Balance Sheet—Continued.

		Appropriations, balances and transfers	Available appropriations,	Expended	Balance merging	Balance not merging
6	For carriage hire and keep or horses for principal and assistant engineers, and for keep of automobile for chief engineer		$2,000 00	$2,000 00		
7	For reconstruction of inlets		1,000 00	994 29	$5 71	
8	For maintenance of Mingo Creek Pumping Station		3,300 00	2,770 55	529 45	
9	For cornerstones and replacing landmarks		500 00	372 25	127 75	
10	For engraving and printing maps of the City Transferred to, November 22, 1911	$100 00 250 00	350 00	333 75	16 25	
11	For investigation, etc., sewerage system Balance Item 12, 1910	$10,000 00 700 00	10,700 00	9,705 83	94 17	$900 00
12	For branch sewers, loan July 1, 1909, balance Item 31, 1910		23,517 85	22,057 44		1,460 41
13	For Cohocksink relief sewer, balance Item 13, 1910		1,500 00			1,500 00
14	For sewage disposal plant, loan February 9, 1907, balance Item 14, 1910		128,810 45	54,513 86		74,296 59
15	For removal of grade crossings, Richmond Branch, Philadelphia and Reading Railway, loan October 1, 1906, balance Item 15, 1910		701,011 79	163,791 32		537,220 47
15a	For removal of grade crossings, Richmond Branch, Philadelphia and Reading Railway, Philadelphia Rapid Transit Company's contribution, balance Item 4b, 1910 Additional contributions, 1911	$3,337 93 5,018 50	8,356 43	5,691 85		2,664 58

Bureau of Surveys—Appropriations for 1911—Balance Sheet—Continued.

		Appropriations, balances and transfers	Available appropriations,	Expended	Balance merging	Balance not merging
16	For new bridges, loan April 15, 1908, balance Item 16, 1910		$92,331 92	$36,384 30		$55,947 62
17	For Passyunk avenue bridge, loan April 15, 1908, balance Item 17, 1910		48,915 43	48,915 43		
18	For construction of new bridges, loan May 18, 1904, balance Item 18, 1910		3,941 04	1,668 33		2,272 71
19	For widening Delaware avenue, extending wharves, altering sewers, etc., and for costs and damages, loan January 13, 1896, balance Item 19, 1910		13,067 25			13,067 25
19a	For widening Delaware avenue, loan February 9, 1907, balance Item 19a, 1910		335,892 38	40,726 81		295,165 57
20b	For surveys, etc., northeast section of the City, loan July 14, 1910, balance Item 33b, 1910		12,023 20	7,141 01		4,882 19
21	For payment of sewer bill, Birch street, to Patrick Durkin, balance Item 21, 1910		30 01			30 01
22	For main sewers, loan April 15, 1908, balance Item 22, 1910		73,119 07	49,859 75		23,259 32
23b	For the widening and improvement of Chestnut street bridge, loan July 14, 1910, balance Item 34b, 1910		90,000 00	37,900 09		52,099 91
24	For abolishing grade crossings on the line of Philadelphia and Trenton Railroad, loan June 17, 1898:					
	Balance Item 24, 1910	$688,907 84				
	Credit by Controller, April 5, 1911	200,000 00				
			888,907 84	789,008 84		99,899 00
25	For Wissahickon avenue bridge over Philadelphia and Reading Railway, balance Item 32, 1910		2,114 05	16 67	$2,097 38	

Bureau of Surveys—Appropriations for 1911—Balance Sheet—Continued.

		Appropriations, balances and transfers	Available appropriations,	Expended	Balance merging	Balance not merging
26	For new bridges, loan February 9, 1907, balance Item 28, 1910		$128,389 39	$82,486 34		$45,903 05
27	For removal of grade crossings along Philadelphia and Reading Railway, between Spring Garden street and Wayne Junction, loan October 1, 1906, balance Item 29, 1910		816,604 11	463,661 26		352,942 85
27a	For removal of grade crossings along Philadelphia and Reading Railway, between Spring Garden street and Wayne Junction, contributions by Philadelphia Rapid Transit Company, balance Item 29a, 1910	$619 68				
	Additional contributions, 1911	51,762 51	52,382 19	48,105 19		4,277 00
28	For preparing plans, etc., improvement of City: Appropriated, February 8, 1911	$15,000 00				
	Transfer from, July 19, 1911	1,800 00	13,200 00	13,118 88	81 12	
29	For claim of Estate of Michael O'Rourke, in connection with work done on Aramingo main sewer, between Richmond street and the bulkhead, appropriation, March 16, 1911		46,083 30			46,083 30
30c	For main sewers, loan April 21, 1911, appropriation May 25, 1911		125,000 00	16,968 80		108,031 20
31c	For branch sewers, loan April 21, 1911, appropriation May 25, 1911		200,000 00	104,088 68		95,911 32
32d	For main sewers, loan June 19, 1911, appropriation July 21, 1911		160,000 00			160,000 00

Bureau of Surveys—Appropriations for 1911—Balance Sheet—Continued.

		Appropriations, balances and transfers	Available appropriations,	Expended	Balance merging	Balance not merging
33d	For branch sewers, loan June 19, 1911, appropriaton July 21, 1911		$100,000 00	$35,680 58		$64,319 42
34d	For Cohocksink sewer, loan June 19, 1911 appropriation July 21, 1911		50,000 00			50,000 00
35d	For new bridges, loan June 19, 1911, appropriation July 21, 1911		200,000 00			200,000 00
36d	For opening streets under the Richmond Branch of the Philadelphia and Reading Railway, between Richmond street and Kensington avenue, loan June 19, 1911, appropriation July 21, 1911		500,000 00			500,000 00
37	For improving the intersection of Cedar avenue and Baltimore avenue with fountain, grass plot, etc.:					
	Appropriation, July 19, 1911	$800 00				
	Additional appropriation, November 22, 1911	200 00				
			1,000 00	528 76		471 24
38	For widening and raising grade of Chestnut street and the east approach to bridge over the Schuylkill river, appropriation July 31, 1911		40,000 00	4,834 33	315 75	34,849 92
	Total		$5,189,730 04	$2,350,763 78	$10,656 43	$2,828,309 83

Receipts of the Bureau of Surveys (except District Surveyors) for the Year 1911.

1911.	Permits.	Sewer assessment bills.	Balances of accounts.	Searches.	Miscellaneous.	Totals.
January	$325 25	$54 50		$94 00	$2 50	$476 25
February	359 00	809 10	$8 89	91 75	3 00	1,271 74
March	1,904 00	1,929 49		117 25	7 50	3,958 24
April	2,219 25	1,371 34		117 25	18 00	3,725 84
May	1,491 00	1,525 42		120 00	11 00	3,147 42
June	1,977 00	2,860 86		124 25	23 00	4,985 11
July	1,300 00	3,298 72		79 75	12 50	4,690 97
August	1,528 25	1,167 16	18	88 00		2,783 59
September	1,448 00	720 24	5 27	90 75	5 00	2,269 26
October	1,530 50	877 51	12 69	106 00	5 00	2,531 70
November	2,200 50	1,252 25	85 40	108 50		3,596 65
December	1,346 25	492 70	10 55	87 75		1,937 25
Totals	$17,629 00	$16,359 29	$72 98	$1,225 25	$87 50	$35,374 02

General Statement of Work Done by District Surveyors during the Year 1911.

Districts.	Surveyor and Regulator.	Lots surveyed, number of.	Curb regulations, linear feet.	Grade regulations, linear feet.	New paving, square yards.	Repaving, square yards.	Macadam, square yards.	Footway paving and repaving, square yards.	Street lines and grades projected, acres.	Street lines and grades revised, acres.	Topographical surveys, acres.	Farm land surveyed, acres.	Estimates of projected work prepared.	Grading measured, cubic yards.
1	John M. Nobre	1,002	24,969	162,273	26,484	39,442	5,563	28,723	14.08		252.50		124	414,963
2	R. A. McFadden	379	25,452	34,371	5,771	20,629						12.65	139	109,950
3	W. C. Cranmer	577	7,093	34,264		72,755				31.00			21	4,316
4	Fritz Bloch	239	11,721	45,148	7,790	127,507		365						53
5	Walter Brinton	2,152	52,738	172,778	53,036	90,027							256	557,613
6	Joseph Mercer	1,158	17,705	47,716	14,385	53,726	1,362	150	1.00				182	36,575
7	W. K. Carlile	149	12,248	50,017	19,006	97,168		15,099					39	39,055
8	C. A. Sundstrom	285	4,755	7,850		2,462			133.00	473.00		70.00	25	14,621
9	Joseph C. Wagner	1,788	24,765	100,752	20,942	26,962	105,075			317.00			207	65,325
10	J. H. Webster, Jr.	871	34,881	124,304	10,784	37,085				320.00		306.00	171	143,684
11	Joseph Johnson	1,018	23,587	144,516	26,356	96,616	2,448	207		283.00			165	51,169
12	J. H. Gillingham	3,161	47,965	156,545	88,373	67,170	832	69				1,750.00	289	55,481
13	H. M. Fuller	1,020	58,250	121,500	52,294	33,001			25.00	110.00		52.00	99	37,357
14	C. B. Webster	85	4,184	20,098					215.00	602.00	2,214.00	279.00	10	256,827
	Totals	13,884	350,313	1,222,182	325,221	764,550	115,280	44,613	388.08	2,136.00	2,466.50	2,469.65	1,727	1,786,979

General Statement of Work Done by District Surveyors during the Year 1911—Continued.

Districts.	Surveyor and Regulator.	Railroad track laid, linear feet.	Crossing stone measured, linear feet.	Gutter measured, stone, vitrified brick and iron, linear feet.	Water pipe measured, linear feet.	Sewer measured, linear feet.	Railway plans prepared.	Jury plans prepared.	Plans prepared for Highway and Survey Committees of Council.	Plans of streets to be placed upon City plan.	Plans of streets to be paved or repaved.	Plans showing laterals from sewer to curb.	Conveyancing and miscellaneous plans prepared.
1	John M. Nobre	13,162	96		8,593	16,115	2	2	2	9	16	59	128
2	R. A. McFadden	13,280	206		10,825	7,784	5		1	4	9	20	
3	W. C. Cranmer	1,480			62	2,185		23	2	4	15		885
4	Fritz Bloch	907	3,662	635		1,672		1	5	1	14		153
5	Walter Brinton		570		22,580	26,186		27	18	12	33		
6	Joseph Mercer	1,000	1,378		4,211	3,157	5	1	9	8	34	22	536
7	W. K. Carlile	14,927	52	68	1,965	2,798					23		77
8	C. A. Sundstrom				1,534	1,765		5		2	3	1	
9	Joseph C. Wagner			3,483	10,092	6,882			74	6	10	6	638
10	J. H. Webster, Jr		367	5,435	11,692	15,148		5	8	2	15	18	348
11	Joseph Johnson		684	1,836	6,628	10,028		4	2	4	56		71
12	J. H. Gillingham	3,094	12		54,596	32,042	3	21	14	8	62		365
13	H. M. Fuller		632		4,992	12,283		2	3	8	15	1	125
14	C. B. Webster			476	500	8,137		2	3		3		194
	Totals	47,850	7,659	11,933	138,270	146,182	15	93	141	68	308	127	3,520

TABLE I. *Main Sewers.*

Main sewers completed.	Length.		Cost of construction.			
	Feet.	Miles.	Assessment bills.	Paid by City. Warrants.	Paid by City. Inspection.	Total cost.
Main sewers completed prior to 1855	95,040	18.00				
Main sewers completed 1855 to 1868	27,456	5.20				$234,588 33
Main sewers completed 1868	3,226	0.61	$3,758 21	$6,528 99		10,287 20
Main sewers completed 1869	18,384	3.48	33,943 02	148,408 36		182,351 38
Main sewers completed 1870	5,422	1.03	11,381 67	214,321 35		225,703 02
Main sewers completed 1871	7,327	1.38	15,242 86	294,114 66		309,357 52
Main sewers completed 1872	1,570	0.30	2,008 08	213,087 75		215,095 83
Main sewers completed 1873	7,655	1.46				98,946 75
Main sewers completed 1874	8,935	1.69				146,834 94
Main sewers completed 1875	5,365	1.02	6,061 90	134,606 94		140,668 93
Main sewers completed 1876	9,714	1.84	4,486 67	486,879 27		491,365 94
Main sewers completed 1877	17,491	3.31	39,744 33	291,588 35	$3,886 33	335,219 01
Main sewers completed 1878	20,342	3.85	37,787 92	188,321 95	5,123 31	231,233 18
Main sewers completed 1879	5,250	0.99	10,152 02	50,736 84		60,888 86
Main sewers completed 1880	2,368	0.45	4,178 75	52,579 50	151 62	56,909 87
Main sewers completed 1881	1,961	0.37	2,939 60	40,389 94	927 51	44,257 05

TABLE I. *Main Sewers*—Continued.

Main sewers completed.	Length.		Cost of construction.			
	Feet.	Miles.	Assessment bills.	Paid by City.		Total cost.
				Warrants.	Inspection.	
Main sewers completed 1882	2,614	0.50	$5,804 30	$17,842 20		$23,646 50
Main sewers completed 1883	4,286	0.92	5,332 51	128,614 98	$1,346 65	135,294 14
Main sewers completed 1884	21,359	4.05	12,439 14	205,323 38		217,762 52
Main sewers completed 1885	12,552	2.38	7,784 65	127,502 03		135,286 68
Main sewers completed 1886	18,518	3.51	12,516 25	193,277 59		205,793 84
Main sewers completed 1887	13,750	2.60	3,462 65	232,290 45		235,753 10
Main sewers completed 1888	14,705	2.79	10,394 30	205,526 12		215,920 42
Main sewers completed 1889	25,640	4.86	12,875 97	324,565 58	10,764 94	348,206 49
Main sewers completed 1890	29,569	5.59	8,328 93	650,325 29	11,923 26	670,577 48
Main sewers completed 1891	36,102	6.84	5,592 13	594,875 42	10,356 28	610,823 83
Main sewers completed 1892	45,125	8.55	12,635 95	537,374 40	12,790 28	562,800 63
Main sewers completed 1893	76,715	14.53	18,263 26	1,151,665 87	18,416 65	1,188,345 78
Main sewers completed 1894	102,269	19.37	1,345 72	1,434,497 79	26,609 92	1,462,453 43
Main sewers completed 1895	48,763	9.23	18,528 72	328,701 53	14,803 28	362,033 53
Main sewers completed 1896	18,661	3.53	17,849 84	137,232 72	5,313 32	160,395 88
Main sewers completed 1897	413	.07		2,329 82	200 00	2,529 82

TABLE I. *Main Sewers*—Continued.

Main sewers completed.	Length.		Cost of construction.			
	Feet.	Miles.	Assessment bills.	Paid by City.		Total cost.
				Warrants.	Inspection.	
Main sewers completed 1898	6,130	1.16	----------	$49,176 70	----------	$49,176 70
Main sewers completed 1899	14,458	2.74	$5,263 63	119,592 34	$3,696 66	128,552 63
Main sewers completed 1900	26,626	5.04	13,625 02	468,822 09	14,919 95	497,367 06
Main sewers completed 1901	21,929	4.15	1,291 72	547,185 99	17,545 82	566,023 53
Main sewers completed 1902	25,302	4.79	1,752 25	633,360 50	17,606 58	652,719 33
Main sewers completed 1903	43,431	8.23	----------	1,006,479 38	22,386 50	1,028,865 88
Main sewers completed 1904	13,316	2.52	----------	354,161 59	11,157 26	365,318 85
Main sewers completed 1905	23,287	4.41	7,198 27	435,148 98	16,373 22	458,720 47
Main sewers completed 1906	10,008	1.895	----------	296,271 74	9,996 19	306,267 93
Main sewers completed 1907	14,579	2.761	4,659 85	337,611 68	11,050 37	353,321 90
Main sewers completed 1908	29,695	5.624	2,971 72	610,228 27	19,860 00	633,059 99
Main sewers completed 1909	26,528	5.024	246 00	588,739 52	21,180 00	610,165 52
Main sewers completed 1910	15,822	2.997	3,400 66	323,019 21	15,330 00	341,749 87
Main sewers completed 1911	7,294	1.381	----------	58,136 12	4,365 00	62,501 12
Totals	987,503	187.022	$365,248 56	$14,221,443 18	$308,080 90	$15,375,142 66

N. B.—The amounts paid in City warrants include inspection, unless otherwise stated. This table includes only such main sewers as have been paid for out of the appropriations to the items for main sewers, and does not include main sewers constructed in connection with other work.

Length and Cost of Main Sewers Built during the Year 1911.

Location.	Size.	Length in feet.		Cost per foot.	Payment.		Total cost.	Contractors.	Inspectors.
		Prior to 1911.	In 1911.		In assessment bills.	In City warrants.			
Bristol street, Twenty-ninth street and across private property from south of Juniata street to Hunting Park avenue, and in Hunting Park avenue from Twenty-ninth street to McMichael street.	5 ft. 6 in. with 15 in. vit. pipe	396.45		$23 95			Work not finished.	E. H. Vare	F. H. Bertholet.
	4 ft. 6 in. with 15 in. vit. pipe	113.87		26 70					
	4 ft. 6 in. with 15 in. vit. pipe	125.20		21 50					
	4 ft. 6 in. with 15 in. vit. pipe	307.35		30 80					
	4 ft. 6 in. with 15 in. vit. pipe	91.40		21 50					
	4 ft. 6 in. with 15 in. vit. pipe	28.98		17 65					
	4 ft. 6 in. with 15 in. vit. pipe	92.20		20 78					
Cobbs creek intercepting sewer in Cobbs Creek Park and Parkway and adjacent to the creek through Mt. Moriah Cemetery from near Sixty-eighth street to near Florence avenue.	5 ft.	5,100.00	442.78	9 42		$13,056 31	$56,256 31	Robert Higgins	John D. Henderson.
	4 ft. 6 in.		25.48	7 65					
	11 ft.		59.20	54 00					
Cobbs creek intercepting sewer extension in Cobb's Creek Park and Parkway from the present terminus south of Florence avenue to Thomas avenue.	4 ft. 6 in.		200.	8 17		1,306 40	Work not finished.	Ryan & Reilly	John D. Henderson.

Length and Cost of Main Sewers Built During the Year 1911—Continued.

Location.	Size.	Length in feet. Prior to 1911.	Length in feet. In 1911.	Cost per foot.	Payment. In cash as work progressed.	Payment. In City warrants.	Total cost.	Contractors.	Inspectors.
Dobsons run stormwater and sewage sewer extension across private property from present terminus near Ontario and Henry streets to existing sewer near Juniata and Bristol streets.	8 ft. 6 in. in tunnel			50 00			Work in progress	Joseph Dyna	F. H. Berthold
	8 ft. 6 in. in open cut			40 00					
Dobsons run intercepting sewer in Ontario street from Roberts avenue to Henry street and across private property to south of Juniata street.	8 ft. 6 in. with 18 in. vit. pipe	1,304.31		36 92			Work not finished.	F. H. Vare	F. H. Berthold
	8 ft. 6 in. with 18 in. vit. pipe in tunnel	124.43		42 00					
	Junction chamber	26.00		Lump sum 1,750 00					
Fifty-seventh street between Susquehanna avenue and Jefferson street and across private property to existing sewer in Lancaster Turnpike road about 50 feet south of Jefferson street.	6 ft. 6 in.		679.50	14 31		12,940 00	Work not finished	J. Joseph McHugh	John J. MacVeigh
	6 ft. 6 in.		84.17	14 88					
	Junction chamber		84.78	Lump sum 1,920 00					
Pennypack creek intercepting sewer extension in Race road from near Mill street to Frankford avenue and in Frankford avenue from Race road to Ashburner street.	15 in. vit. pipe			9 00			Work in progress.	John McMenamin	Joseph I. Stilliger
	10 in. vit. pipe			9 00					
	10 in. cast-iron pipe			9 00					

Length and Cost of Main Sewers Built during the Year 1911—Continued.

Location.	Size.	Length in feet.		Cost per foot.	Payment.		Total cost.	Contractors.	Inspectors.
		Prior to 1911.	In 1911.		In assessment bills.	In City warrants.			
Pennypack creek intercepting sewer adjacent to Pennypack creek between the Delaware river and Frankford avenue	24 in. vit. pipe	----------	1,461.81	$5 40	----------	$22,080 00	Work not finished.	Richard P. Bennis	Joseph L. Stinger.
	18 in. vit. pipe	----------	1,137.00	4 00	----------				
	15 in. vit. pipe	----------	214.5	8 25	----------				
	12 in. vit. pipe	----------	2,663.78	3 96	----------				
	12 in. cast-iron pipe	----------	206.	12 00	----------				
	3 ft. by 2 ft.	----------	16.	10 00	----------				
Rock run sewer extension in Fisher avenue from present terminus east of Sixth street to Tenth street.	12 ft.	----------	68.66	27 62	----------	3,422 40	Work not finished.	Patrick Durkin	W. E. Haley.
	6 ft.	----------	86.00	12 61	----------				
	Junction chamber	----------	34.16	Lump sum 1,298 00	----------				
Third street from Ashdale street to Tabor street.	5 ft.	90.00	----------	6 68	----------	6,031 01	$20,815 01	Michael McNulty	John Doyle, John Barlow.
	5 ft.	477.00	----------	11 68	----------				
	5 ft.	308.00	----------	8 68	----------				
	4 ft. 9 in.	1,097.00	16.00	7 68	----------				
	4 ft. 9 in.	100.00	----------	18 68	----------				
	4 ft. 6 in.	----------	309.00	5 68	----------				

Sewers Constructed by the Bureau of Highways in the Boulevard, from Broad Street Northeastwardly, during the Year 1911.

Size.	Linear feet.	Cost per foot.	Inlets.			Manholes.		Masonry.		Terra cotta pipe.			Total cost.	Inspectors.	Contractors.
			Size.	Number built.	Cost each.	Number built.	Cost each.	Number of cubic yards.	Cost per cubic yard.	Size.	Number of feet.	Cost per foot.			
Fifth Survey District.															
3 ft. x 2 ft.	306.	$2 68	2 3	16 2	96 00 90 00	1	$50 00	93. 4.3	$4 25 6 50	15" 12"	970. 62.	$1 04 90	$4,073 86	Harry W. Newton, George W. Myers.	McNichol Paving and Construction Company.
Tenth Survey District.															
12 ft. x 12 ft.	120.0	41 81	2	12	96 00	10	50 00	905.90	4 25	18"	217.5	1 17	39,287 84		
7 ft. x 7 ft.	157.1	18 63	3	17	90 00	----	----	35.14	6 50	15"	119.0	1 04			
5 ft. st. bl. inv.	80.0	8 35	Rebuilt			----	----	----	----	12"	253.0	90			
4 ft. vit. sh. br. inv.	270.0	9 29	2	1	96 00										
4 ft. vit. sh. br. inv.	75.0	6 27													
4 ft.	133.3	9 36													
4 ft.	192.0	6 00													
3 ft.	92.5	7 37													

Sewers Constructed by the Bureau of Highways in the Boulevard, from Broad Street Northeastwardly during the Year 1911—Continued.

Size.	Linear feet.	Cost per foot.	Inlets.			Manholes.		Masonry.		Terra cotta pipe.			Total cost.	Inspectors.	Contractors.
			Size.	Number built.	Cost each.	Number built.	Cost each.	Number of cubic yards.	Cost per cubic yard.	Size.	Number of feet.	Cost per foot.			
Tenth Survey District—Continued.															
3 ft. vit. sh. br. inv	37.0	$4 76												Harry W. Newton, George W. Myers.	McNichol Paving and Construction Company.
3 ft.	275.6	3.95													
3 ft. x 2 ft. vit. sh. br. inv	224.0	5 70													
3 ft. x 2 ft. vit. sh. br. inv	318.2	2 80													
3 ft. x 2 ft	309.4	5 52													
3 ft. x 2 ft	136.1	2 68													
2 ft. 6 in. x 1 ft. 8 in. vit. sh. br. inv.	144.0	2 44													
2 ft. 6 in. x 1 ft. 8 in	122.8	5 00													
2 ft. 6 in. x 1 ft. 8 in	1,279.3	2 28													
18 in. vit. pipe	96.0	2 77													

Sewers Constructed by the Bureau of Highways in the Boulevard, from Broad Street Northeastwardly during the Year 1911—Continued.

Size.	Linear feet.	Cost per foot.	Inlets.			Manholes.		Masonry.		Terra cotta pipe.			Total cost.	Inspectors.	Contractors.
			Size.	Number built.	Cost each.	Number built.	Cost each.	Number of cubic yards.	Cost per cubic yard.	Size.	Number of feet.	Cost per foot.			
Fourteenth Survey District.															
13 ft. circular	128.0	$43 93	2	7	$96 00	1	$70 00	82.	$4 25	15"	206.	$1 04	$28,495 61	Harry W. Newton, George W. Myers.	McNichol Paving and Construction Company.
4 ft. 6 in. cir. with 15 in. v. p.	17.0	16 94	3	9	90 00	15	50 00	27.	6 50	12"	16.	90			
4 ft. 6 in. cir. with 12 in. v. p.	273.0	13 20	4	3	54 00	4	40 00	113.	2 50	10"	206.	90			
4 ft. cir. with 12 in. v. p.	144.0	7 41								5"	30.	60			
4 ft. cir. st. bl. inv.	24.0	9 27													
4 ft. cir.	30.0	9 36													
3 ft. cir. with 2 ft. 6 in. cir.	9.0	11 68													
3 ft. cir.	433.0	3 46													
3 ft. cir. with 10 ft. v. p.	627.0	9 30													
3 ft. cir.	58.0	6 48													

Sewers Constructed by the Bureau of Highways in the Boulevard, from Broad Street Northeastwardly during the Year 1911—Continued.

Size.	Linear feet.	Cost per foot.	Inlets.			Manholes.		Masonry.		Terra cotta pipe.			Total cost.	Inspectors.	Contractors.
			Size.	Number built.	Cost each.	Number built.	Cost each.	Number of cubic yards.	Cost per cubic yards.	Size.	Number of feet.	Cost per foot.			
2 ft. 6 in. cir. with 10 in. v. p....	6.0	$4 15												Harry W. Newton, George W. Myers.	McNichol Paving and Construction Company.
2 ft. 6 in. cir. with 10 in. v. p....	43.0	5 93													
3 ft. x 2 ft....	186.0	5 52													
3 ft. x 2 ft....	192.0	2 68													
12 in. vit. pipe....	68.0	2 40													
10 in. vit. pipe....	41.0	2 22													
4 ft. rebuilt....	30.0	10 00													

Sewer and Other Work Incident to the Widening of Delaware Avenue. Contract No. 19 from South Street to Christian Street.

Item	Price	Quantity		Amount		Total cost
		Prior to 1911	In 1911	Prior to 1911	In 1911	
Yellow pine piles, complete	$11 00	130.	20.	$1,430 00	$220 00	$1,650 00
Piles shoes, complete	2 00	9.	1.	18 00	2 00	20 00
New sawed timber	70 00	10,000.	2,335.	700 00	163 45	863 45
Concrete masonry	11 25	207.	153.19	2,328 75	1,723 39	4,052 14
Vitrified shale brick invert	1 56		28.		43 68	43 68
Brick sewer, 7-feet circular	24 00		114.		2,736 00	2,736 00
Brick sewer, 3-feet circular	9 94		16.25		161 53	161 53
Vitrified pipe sewer, 24-inch	10 64	156.		1,659 84		1,659 84
Vitrified pipe sewer, 12-inch	8 70	567.		4,932 90		4,932 90
Steel beams, rods and plates	0 04	20,000.	2,175.	800 00	87 00	887 00
Removal of cribs	0 15	1,000.	830.	150 00	124 50	274 50
New paving	1 94	253.	1,125.68	490 82	2,183 82	2,674 64
Bluestone curb, 5-inch	0 75	30.		22 50		22 50
Silt basins	40 00		4.		160 00	160 00
Repaving	0 20	288.	755.8	57 00	151 16	208 76

Contractor—Lockard & Pascoe Co.. Inc. Inspector—C. A. Crouse, E. H. Sickels. Final Estimate—April 29, 1911.

Sewer and Other Work Incident to the Widening of Delaware Avenue. Contract No. 19—from South Street to Christian Street—Continued.

Item	Price	Quantity		Amount		Total cost	
		Prior to 1911	In 1911	Prior to 1911	In 1911		
Granite crossing stone, 20-inch	$1 40		506.3		$708 82	$708 82	
Manholes, cast iron covers	45 00		2.		90 00	90 00	
No. 2 brick and stone inlets	80 00	1.		$80 00		80 00	
Terra cotta pipe, 6-inch	0 60	136.	172.	81 60	103 20	184 80	
Cast iron pipe, 6-inch	1 20		6.		7 20	7 20	
Terra cotta pipe, 12-inch	1 00	14.		14 00		14 00	
Terra cotta pipe, 15-inch	1 25	4.	33.	5 00	41 25	46 25	
Granite curb, 8-inch	1 50		17.		25 50	25 50	
Rubble masonry	4 50	16.7		75 15		75 15	
Brick masonry	9 00	3.8	3.9	34 20	35 10	69 30	
Excavation	0 50		118.3		59 15	59 15	
						$21,707 11	Contractor—Lombardi & Pascuzzi Co., Inc. Inspectors—C. A. Crossin, E. H. S'cke's. Final Estimate—April 29, 1911.

Sewer and Other Work Incident to the Widening of Delaware Avenue. Contract No. 20—from Vine Street to Fairmount Avenue.

Item	Price	Quantity		Amount		Total cost	
		Prior to 1911	In 1911	Prior to 1911	In 1911		
Yellow pine piles	10 00	303.	14.	3,030 00	140 00	3,170 00	Contractors, McNichol Paving and Construction Co. Inspector, J. W. Sillman. Final estimate, December 6, 1911.
Sawed timber	80 00	20,377.	5,586.	1,630 16	446 88	2,077 04	
Brick sewer, 3 ft. 6 in. diam	10 00	397.	125.5	3,970 00	1,255 00	5,225 00	
Brick sewer, 3 ft. diam	10 00		48.		480 00	480 00	
Excavation	$0 50		6.6		$3 30	$3 30	
Brick masonry	9 00		0.7		6 30	6 30	
No. 3. G. T. brick and stone inlets	75 00		2.		150 00	150 00	
Vitrified pipe, 15-inch	1 25		14.		17 50	17 50	
Granite block paving	2 45		7,790.4		19,086 48	19,086 48	
Granite block repaving	50		1,359.7		679 85	679 85	
Crossing stone, 20-inch	1 25		631.		788 75	788 75	
Removal of solid cribs, etc	10		8,419.7		841 97	841 97	
						$32,526 19	

Length and Cost of Sewers Built During the Year 1911, in Connection With the Abolishment of Grade Crossings Along the Philadelphia, Germantown & Norristown Railroad.

Location	Size of sewer	Length in feet		Cost per foot	Total cost	Contractors	Inspectors
		Prior to 1911	In 1911				
Contract No. 106—Grading, paving, repaving, and appurtenant work on Fairmount avenue, Darien and Percy streets, Columbia avenue, Ninth and Hutchinson streets and Ninth street, between Brown and Jefferson street.	3 ft. cir. in earth or rock	571	222	$6 00	$24,629 70	McNichol Paving and Construction Company	Chas. E. Preston Louis Munch, Jr.
	3 ft. circ. in reduced cradle	352		6 40			
	3 ft. circ. vit sh. br. inv. in earth or rock		118.3	6 30			
	3 ft. 6 in. by 2 ft 4 in., in earth or rock		946	4 85			
	3 ft. by 2 ft. in earth or rock		1,307	4 90			
	2 ft. 6 in. circ. in earth or rock		43.9	4 60			
	2 ft. 6 in. circ. vit sh. br. inv. in reduced cradle	192		6 00			
	2 ft. 6 in. by 1 ft. 8 in. in earth or rock	414		3 80			
	2 ft. 3 in. by 1 ft. 6 in. in earth or rock	378	45.	4 90			
	18 in. vit. clay pipe in concrete		313.	3 00			

Length and Cost of Sewers Built During the Yeor 1911, in Connection With the Abolishment of Grade Crossings Along the Philadelphia, Germantown & Norristown Railroad.

Location	Size of sewer	Length in feet		Cost per foot	Total cost	Contractors	Inspectors
		Prior to 1911	In 1911				
Contract No. 110—Grading, paving, repaving, and appurtenant work in Allegheny avenue, Nineteenth, Westmoreland and Ontario strets, and all other streets affected by the change of grade adjacent thereto.	2 ft. 6 in. by 1 ft. 8 in. vit. sh. br. inv. in earth or rock	1,588	835.2	$1 90	$14,872 97	McNichol Paving and Construction Company	Peter D. Brown. William Scarlett.
	2 ft. 3 in. by 1 ft. 6 in. vit. sh. br. inv. in earth or rock	161	126.8	4 80			
	3 ft. 4 in. by 5 ft vit. sh. br. inv. in earth or rock	124		13 10			
Contract No. 111—Grading, paving, repaving, and appurtenant work in Hunting Park avenue, Erie avenue and Venango street, and all other streets affected by the change of grade adjacent thereto.	3 ft. circ. in earth or rock	75		6 00	$3,069 15	McNichol Paving and Construction Company	Joseph Hunter.
	3 ft. by 2 ft. in earth or rock	277	468.5	3 50			

Length and Cost of Sewers Built During the Year 1911, in Connection With the Abolishment of Grade Crossings Along the Richmond Branch of the Philadelphia & Reading Railway.

Location	Size of sewer	Length in feet: Prior to 1911	Length in feet: In 1911	Cost per foot	Total cost	Contractors	Inspectors
Contract No. 112—Grading, paving, repaving, and appurtenant work in Lehigh avenue, Frankford avenue, Aramingo avenue, Belgrade street, Thompson street, and all adjacent streets affected by the change of grade.	3 ft, circ. in earth or rock	----------	181.2	$6 55	$12,593 96	F. H. Bertolet. William Scarlett.	McNichol Paving and Construction Company
	3 ft. circ. in reduced cradle	----------	94.7	8 55			
	3 ft. by 2 ft. in earth or rock	----------	358.2	2 95			
	3 ft. by 2 ft. in reduced cradle	----------	70.1	4 45			
	3 ft. by 2 ft. vit. sh. br. inv. in earth or rock	----------	277.1	3 20			
	2 ft. 3 in. by 1 ft. 6 in. in reduced cradle	----------	74.9	3 25			
	2 ft. 3 in. by 1 ft. 6 in. vit. sh. br. inv. in earth or rock	----------	312.1	2 60			

Payment Made on City Contracts, from Inception of Work to December 31, 1911. Abolishment of Grade Crossings, Philadelphia, Germantown and Norristown Railroad.

	Total amount paid.	Paid by railway company.	Paid by City.
Contract No. 101*	$29,497 98	$14,748 99	$14,748 99
Contract No. 102*	33,861 39	16,930 69	16,930 70
Contract No. 103*	46,927 39	23,463 70	23,463 69
Contract No. 104*	71,100 92	35,550 46	35,550 46
Contract No. 105*	36,602 56	18,301 28	18,301 28
Contract No. 108	113,363 00	56,681 50	56,681 50
Contract No. 109*	110,756 42	55,378 21	55,378 21
Contract No. 110*	130,000 00	65,000 00	65,000 00
Contract No. 111*	43,125 00	21,562 50	21,562 50
Totals	$615,234 66	$307,617 33	$307,617 33

Richmond Branch, Elevated, Philadelphia and Reading Railway.

	Total amount paid.	Paid by railway company.	Paid by City.
Contract No. 106*	$30,126 28	$15,063 14	$15,063 14
Contract No. 107*	49,821 96	24,910 98	24,910 98
Contract No. 112	77,290 71	38,645 36	38,645 35
Contract No. 113	45,044 00	22,522 00	22,522 00
Totals	$202,282 95	$101,141 48	$101,141 47

* Contract completed.

Estimates Rendered and Approved on Railway Company Contracts, from Inception of Work to December 31, 1911. Abolishment of Grade Crossings, Philadelphia, Germantown and Norristown Railroad.

	Total amount paid.	Paid by railway company.	Paid by City.	Betterment.
Contract No. 1	$278,511 39	$182,774 13	$95,737 26	$87,036 87
Contract No. 2 (terminated by railway company)	7,092 64	5,412 25	1,680 39	3,731 86
Contract No. 2 (relet)*	179,538 56	116,794 90	62,743 66	54,051 24
Contract No. 3*	842,741 57	525,949 55	316,792 02	209,157 53
Contract No. 4*	171,304 96	87,627 60	83,677 36	3,950 24
Contract No. 5*	460,992 79	238,920 89	222,072 90	16,847 99
Contract No. 6	95,667 55	66,881 22	28,786 33	33,094 89
Contract No. 7*	290,580 77	147,274 24	143,306 53	3,967 71
Contract No. 8*	340,794 53	203,525 35	137,269 18	66,256 17
Contract No. 9*	106,812 17	53,406 09	53,406 08	
Contract No. 10*	111,275 19	58,670 05	52,605 14	6,064 91
Contract No. 11*	267,559 51	134,961 62	132,597 89	2,363 73
Contract No. 12 (terminated by railway com'y	16,671 01	8,335 51	8,335 50	
Contract No. 12 (relet)*	89,397 59	50,359 63	39,037 96	11,321 67
Contract No. 14*	67,059 23	34,000 28	33,058 95	941 33
Contract No. 15	207,806 46	194,802 53	13,003 93	181,798 60
Contract No. 16	61,000 43	44,642 38	16,358 05	28,284 33
Contract No. 17*	43,554 57	36,927 81	6,626 76	30,301 05
Contract No. 19	125,089 18	106,915 45	18,173 73	88,741 72
Contract No. 21*	96,670 13	77,039 32	19,630 81	57,408 51
Contract No. 26*	51,571 60	25,785 80	25,785 80	
Contract No. 27*	40,381 40	20,190 70	20,190 70	
Contract No. 28*	53,326 82	39,940 08	13,386 74	26,553 34
Contract No. 29*	8,920 94	4,460 47	4,460 47	
Contract No. 30*	273,578 29	157,196 83	116,381 46	40,815 37
Contract No. 31*	42,884 33	22,484 74	20,399 59	2,085 15
Contract No. 32*	70,350 03	39,966 17	30,383 86	9,582 31
Contract No. 33*	4,155 92	2,077 96	2,077 96	

* Contract completed.

Estimates on Railway Company Contracts—Continued.

	Total amount paid.	Paid by railway company.	Paid by City.	Betterment.
Contract No. 35*----------	$2,762 83	$1,578 35	$1,184 48	$393 87
Contract No. 36*----------	14,029 35	10,728 04	3,301 31	7,426 73
Contract No. 38*----------	8,567 46	8,116 95	450 51	7,666 44
Contract No. 39*----------	27,034 15	24,845 98	2,188 17	22,657 81
Contract No. 41*----------	6,107 27	4,861 85	1,245 42	3,616 43
Contract No. 46*----------	18,884 26	18,128 34	755 92	17,372 42
Contract No. 47*----------	12,301 65	8,042 57	4,259 08	3,783 49
Contract No. 48*----------	3,583 70	3,507 23	76 47	3,430 76
Contract inspection -------	10,429 56	6,402 76	4,026 80	2,375 96
Totals----------	$4,508,990 79	$2,773,535 62	$1,735,455 17	$1,038,080 43

*Contract completed.

Estimates Rendered and Approved on Railway Company Contracts, from Inception of Work to December 31, 1911. Abolishment of Grade Crossings. Richmond Branch Elevated. Philadelphia & Reading Railway.

	Total amount paid.	Paid by railway company.	Paid by City.	Betterment.
Contract No. 22	$95,124 90	$69,109 23	$26,015 67	$43,093 56
Contract No. 23	90,318 36	70,743 09	19,575 27	51,167 82
Contract No. 24	83,517 88	48,847 59	34,670 29	14,177 30
Contract No. 25	64,160 00	34,642 24	29,517 76	5,124 48
Contract No. 40	47,694 50	36,210 99	11,483 51	24,727 48
Contract inspection	880 30	599 08	281 22	317 86
Totals	$381,695 94	$260,152 22	$121,543 72	$138,608 50

Statement of Inlets Built with Solid Cast Iron Covers and Iron Grate Covers, Inlets Rebuilt, Removed and Rebuilt at Other Places, Curved Granite Curb, Sewer Spurs, Masonry, Etc., in Connection with Old Sewers, during the Year 1911.

Inlets			Manholes		Wellholes		Granite Curb		Lateral Connections		6, 8, 10, 12 15 & 18 inch vit. pipe		Sewer spurs			Brick masonry etc.
Form	No. built and rebuilt	Cost	No. built	Cost	No. feet	Cost	No. feet	Cost	No. feet	Cost	No. feet	Cost	Size	No. feet	Cost	Cost
New inlets																
Solid cast iron cover No. 1	-----	----------	32	$1,620 00	32	$256 00	curved 1,940.85	curb $4,740 26	8,580	$4,031 82	1,390.50	$3,585 00	2 ft. 3 in. x 1 ft 6 in.	196	$392	$1,568 25
Solid cast iron cover No. 2	47	$1,275 00														
Solid cast iron cover No. 3	45	3,905 00														
Solid cast iron cover No. 4	17	775 00														
Iron grate cover No. 2	8	630 00														
Iron grate cover No. 3	32	2,245 00	----	----------	-----	---------	Straight 226.46	curb 339 70					3 ft. 6 in. circular	43	215	
Iron grate cover No. 4	46	2,245 00														
Old inlets																
Inlets rebuilt	75	2,670 00														
Total	270	$16,745 00	32	$1,620 00	32	$256 00	2,167.31	$5,079 96	8,580	$4,031 82	1,390.50	$3,585 00	----------	289	$607	$1,568 25

Total cost for the above work, $33,493 03. Cost of inspection included in Branch Sewer Account.

Summarized Statement of Branch Sewers Built during the year 1911.

Branch sewers.		Brick and stone inlets.		Manholes.	Wellholes.	Curved granite curb.	Lateral house connections.	Repaving.	Payments.		Inspection.	Total cost of branch sewers.	Excess bills and balances.
Feet.	Miles.	Size.	Number built.	Number built.	Vertical feet.	Number feet.	Number feet.	Number square yards.	In assessment bills.	In City warrants.	Total for branch sewers, inlets, etc.		
		1	3										
		2	59										
		3	109										
65,117.778	12.332	4	5	473	66	1,870.64	44,119.00	8.70	$127,550 53	$88,157 28	$32,985 00	$248,692 81	$5,013 59
		Rebuilt		Junction									
		10	--------	4									

821.95 feet of straight granite curb.
65.72 feet of curb reset.
2,323.04 cubic yards of rubble masonry.
593.18 cubic yards of concrete masonry.
1,567.92 cubic yards of excavation.
1,560.00 feet of yellow pine timber.
4,665.00 pounds of steel bars.

Branch Sewers.

Branch sewers completed.	Length.		Cost of construction, not including inlets specially ordered.			
			Assessment Bills.	Paid by City.		Total cost.
	Feet.	Miles.		Warrants.	Inspection.	
Branch sewers built prior to 1855	103,060	19.50				
Branch sewers built 1855 to 1867	92,852	17.57				$189,259 43
Branch sewers built 1867	33,946	6.43	$62,927 84	$9,384 00		72,311 84
Branch sewers built 1868	32,667	6.19	62,569 21	13,112 87		75,682 08
Branch sewers built 1869	49,598	9.39	116,447 61	19,869 96		136,317 57
Branch sewers built 1870	57,099	10.81	137,600 04	27,013 34		164,613 38
Branch sewers built 1871	49,829	9.44	109,505 59	9,049 97		118,555 56
Branch sewers built 1872	45,763	8.67	102,566 11	12,310 37		114,876 48
Branch sewers built 1873	69,800	13.22	152,830 14	27,866 12		180,696 26
Branch sewers built 1874	59,936	11.35	136,144 74	16,788 55		152,933 29
Branch sewers built 1875	77,977	14.77	179,422 85	6,680 41		186,113 26
Branch sewers built 1876	43,560	8.25	98,133 03	11,203 96		109,336 99
Branch sewers built 1877	28,932	5.48	59,390 64	5,422 40		64,813 04
Branch sewers built 1878	32,104	6.08	70,949 88			67,376 90
Branch sewers built 1879	17,644	3.34	35,875 96	1,004 02		36,879 98

Branch Sewers—Continued.

Branch sewers completed.	Length.		Cost of construction, not including inlets specially ordered.			
			Assessment bills.	Paid by City.		Total cost.
	Feet.	Miles.		Warrants.	Inspection.	
Branch sewers built 1880	17,641	3.34	$38,826 99			$32,169 90
Branch sewers built 1881	33,824	6.46	75,231 29			70,001 62
Branch sewers built 1882	25,556	4.84	58,528 86	$8,325 26		66,854 12
Branch sewers built 1883	40,385	7.65	91,588 02	38,900 31		130,488 33
Branch sewers built 1884	62,276	11.79	109,049 87	40,278 76		149,328 63
Branch sewers built 1885	79,154	14.99	149,358 27	25,760 67	$9,396 45	184,515 39
Branch sewers built 1886	113,300	21.46	181,036 87	68,943 60	15,236 28	265,216 75
Branch sewers built 1887	101,999	19.32	173,580 34	65,639 48	16,454 19	255,674 01
Branch sewers built 1888	159,890	30.28	329,561 93	148,767 40	20,224 62	498,553 95
Branch sewers built 1889	162,037	30.69	309,272 09	99,104 95	24,037 87	432,414 91
Branch sewers built 1890	143,583	27.19	239,537 65	97,290 77	22,269 28	359,097 70
Branch sewers built 1891	156,681	29.67	254,066 04	98,077 47	24,285 99	376,429 50
Branch sewers built 1892	132,000	25.00	251,728 24	102,026 26	19,673 05	373,427 55
Branch sewers built 1893	232,863	44.10	465,848 44	333,565 27	33,889 63	833,303 33
Branch sewers built 1894	332,220	62.92	651,286 40	435,280 09	54,926 00	1,141,492 49
Branch sewers built 1895	224,625	42.55	283,819 68	192,369 13	53,639 12	629,827 93
Branch sewers built 1896	116,633	22.09	347,515 35	125,997 59	51,675 57	525,188 51

Branch Sewers—Continued.

Branch sewers completed.	Length.		Cost of construction, not including inlets specially ordered.			
			Assessment bills.	Paid by City.		Total cost.
	Feet.	Miles.		Warrants.	Inspection.	
Branch sewers built 1897	133,060	25.20	$212,933 31	$136,847 08	$36,882 52	$386,662 91
Branch sewers built 1898	114,102	21.61	208,610 31	187,953 24	33,116 06	429,679 61
Branch sewers built 1899	176,013	33.33	277,930 89	266,281 35	46,082 92	590,295 16
Branch sewers built 1900	186,238	35.27	288,110 98	251,476 06	44,596 04	584,183 08
Branch sewers built 1901	121,373	22.99	207,169 05	149,091 62	37,226 27	393,486 94
Branch sewers built 1902	110,630	20.95	201,441 27	131,279 26	37,009 59	369,730 12
Branch sewers built 1903	82,589	15.64	144,218 33	167,760 33	26,556 38	338,535 04
Branch sewers built 1904	113,514	21.50	203,915 16	186,655 23	32,979 45	423,549 84
Branch sewers built 1905	103,370	19.57	179,460 96	224,461 99	33,996 22	437,919 17
Branch sewers built 1906	82,710	15.664	147,098 94	178,006 34	30,572 34	355,677 62
Branch sewers built 1907	112,463	21.299	191,028 48	352,742 58	37,107 71	580,878 77
Branch sewers built 1908	116,790	22.119	209,840 14	348,727 21	50,450 00	609,017 35
Branch sewers built 1909	130,037	24.628	187,918 45	336,925 36	56,705 00	581,548 81
Branch sewers built 1910	60,432	11.445	90,086 21	195,463 62	31,935 00	317,484 83
Branch sewers built 1911	65,118	12.332	127,550 53	88,157 28	32,985 00	248,692 81
Totals	4,637,893	878.387	8,306,522 98	5,241,861 52	918,908 55	14,641,182 74

N. B.—The amounts paid in City warrants include inspection unless otherwise stated. This table includes only such branch sewers as have been paid for out of the appropriations to the items for branch sewers, and does not include branch sewers constructed in connection with other work.

Length and Cost of Branch Sewers Built During the Year 1911.

Location.	Size.	Length in feet.	Inlets.			Manholes.		Wellholes, curved curb, house connections, etc.			Cost per foot.	Payment.			Excess bills and balances.	Inspectors.	Contractors.	Date of final estimate.
			Size.	No. built.	Cost each.	No. built.	Cost each.	No. built.	Per foot.	Total cost.		In assessment bills.	In City warrants.	Total cost.				
Allens Lane, from Lincoln avenue to the Pennsylvania Railroad	10 in. vit. pipe with 2 ft. cir.	712.8				10	$50 00				$3 24	$1,894 11	$915 36	$2,809 47		John S. Kelly	David McMahon	Oct. 3
Allegheny avenue (north side), from Twenty-sixth street to Twenty-ninth street	12 in. vit. pipe with 2 ft. 9 in. cir.	421.478	2	1	$80 00	18	50 00	curved curb. 11.87	$2 25	$26 71	2 84	1,727 26	2,607 98	4,335 24		John Lloyd	Vincent Jafolla	Oct. 9
	12 in. vit. pipe with 2 ft. 6 in. cir.	401.5	3	5	75 00			str. curb. 60.	1 50	$90 00	2 00							
	10 in. vit. pipe with 2 ft. cir.	400.						house conns. 46.	60	27 60	1 75							
	2 ft. 9 in. cir.	42.25						rubble masonry. 2.1	4 50	9 45	1 50							
	12 in. vit. pipe	36.8									75							
	10 in. v. p.	2.									75							
	12 in. v. p.	34.									1 00							

Length and Cost of Branch Sewers Built During the Year 1911—Continued.

Location.	Size.	Length in feet.	Inlets.			Manholes.		Wellholes, curved curb, house connections, etc.			Cost per foot.	Payment.			Excess bills and balances.	Inspectors.	Contractors.	Date of final estimate.
			Size.	No. built.	Cost each.	No. built.	Cost each.	No. built.	Per foot.	Total cost.		In assessment bills.	In City warrants.	Total cost.				
Alter street, from Fifty-eighth street to Fifty-ninth street	2 ft. 3 ins. by 1 ft. 6 ins.	513.	3	1	$75 00	4	$50 00	curved curb. 13.04	$2 25	$29 34	$1 46	$1,302 12	----------	$1,302 12	$18 13	Robert I. MacFarland	John A. Robb	Nov. 6
	12 in. v. p.	22.	----	----	------	----	------	house conns. 378.	60	226 80	1 00							
Agate street, from Westmoreland street to Ontario street	3 ft. by 2 ft.	716.19	----	----	------	5	50 00	house conns. 663.	60	397 80	1 20	1,507 23	----------	1,507 23	630 00 11 33	John S. Kelly	Fred. T. Buckius	Nov. 6
Almond street, from Westmoreland street to Ontario street	3 ft. by 2 ft.	754.	----	----	------	5	50 00	house conns. 874.	60	524 40	1 20	1,679 20	----------	1,679 20	2 46 466 90	August Durr	Fred. T. Buckius	Nov. 13
B street, from Ontario street to Tioga street	2 ft. 3 ins. by 1 ft. 6 ins. vit. sh. br. inv.	1,005.	3	2	75 00	8	50 00	curved curb. 18.85	2 25	42 41	1 70	1,359 00	963 51	2,322 51	----------	C. A. Crossin	Patrick Durkin	Sept. 2
								house conns. 36.	60	21.60							

Length and Cost of Branch Sewers Built During the Year 1911—Continued.

Location.	Size.	Length in feet.	Inlets.			Manholes.		Wellholes, curved curb, house connections, etc.			Cost per foot.	Payment.			Excess bills and balances.	Inspectors.	Contractors.	Date of final estimate.
			Size.	No. built.	Cost each.	No. built.	Cost each.	No. built.	Per foot.	Total cost.		In assessment bills.	In City warrants.	Total cost.				
Brill street, from Cedar street to Frankford avenue.	2 ft. 6 ins. by 1 ft. 8 ins.	349.6	2	1	$80 00	3	$50 00	curved curb. 17.1 str. curb. 6. house conns. 261.	$2 25 1 50 60	$38 48 9 00 156.60	$1 45	863 34	77 66	941 00		David J. Davis	Joseph Conklin	Sept. 15
Boyer street, from Gowen avenue to end of present sewer, southeast of Gowen avenue	10 in. vit. pipe	404.				2	50 00				2 45	999 62	95 81	1,095 43		Thomas J. Morrow	David McMahon	Nov. 6
	10 in. v. p.	7.5									75							
Cresson street, from Scotts lane to Crawford st.	10 in. vit. pipe with 2 ft. cir. vit. sh. br. inv.	460.87	2	1	80 00	8	50 00	str. curb. 12. house conns.	1 50	18 00	3 39	561 14	1,740 61	2,301 75		Frank C. Spitzer	Richard Bennis	Jan. 30
	10 in. v. p.	40.	3	1	75 00			224.	60	134 40	75							
	12 in. v. p.	2.									1 00							

Length and Cost of Branch Sewers Built During the Year 1911—Continued.

Location.	Size.	Length in feet.	Inlets.			Manholes.		Wellholes, curved curb, house connections, etc.			Cost per foot.	Payment.			Excess bills and balances.	Inspectors.	Contractors.	Date of final estimate.
			Size.	No. built.	Cost each.	No. built.	Cost each.	No. built.	Per foot.	Total cost.		In assessment bills.	In City warrants.	Total cost.				
Chalmers avenue, from Lehigh ave. to Twenty-ninth street								curved curb.										
	2 ft. 6 ins. by 1 ft. 8 ins.	619.	1	1	$80 00	----	------	13.	$2 25	$29 25								
			3	1	75 00	4	$50 00	str. curb.										
								------	------	------								
								24.	1 50	36 00								
			rebuilt.					house conns.										
	12 in. v. p.	115.	3	1	45 00	----	------	211.	60	126 60	1 00							
Capitol st., from Dickinson street to Tasker street								curb reset.										
	2 ft. 6 ins. by 1 ft. 8 ins.	432	3	1	75 00	3	50 00	4.5	20	90	2 04	1,126 53	149 05	1,275 58	----------	George H. Schmunk ---	William A. Ryan	Nov. 27
								house conns.										
	12 in. v. p.	28.	----	----	------	----	------	234.	60	140 40	1 00							
Chadwick street, from Moore st. to Morris street								curb reset.										
	2 ft. 6 ins. by 1 ft. 8 ins.	444.	4	1	45 00	3	50 00	10.8	20	2 16	2 26	1,200 76	167 04	1,367 80	----------	J. M. Donnelly	John A. Robb---	Nov. 27
								house conns.										
	12 in. v. p.	16.	----	----	------	----	------	252.	60	151 20	1 00							
Clementine street, from Twenty-eighth street to Twenty-ninth st.								curved curb.										
	10 in. vit. pipe with 2 ft. cir.	391.58	2	1	80 00	8	50 00	11.88	2 25	26.73	2 20	913 00	1,256 46	2,169 46	----------	John Doyle---	Fred. T. Buckius	Dec. 22
								str. curb.										
								24.	1 50	36 00								
								curb reset.										
	10 in. vit. pipe	12.42	3	1	75 00	----	------	8.	20	1 60	2 20							
								house conns.										
	2 ft. cir.	12.33	4	1	45 00	----	------	982.	60	589 20	2 20							

Length and Cost of Branch Sewers Built During the Year 1911—Continued.

Location.	Size.	Length in feet.	Inlets.			Manholes.		Wellholes, curved curb, house connections, etc.			Cost per foot.	Payment.			Excess bills and balances.	Inspectors.	Contractors.	Date of final estimate.
			Size.	No. built.	Cost each.	No. built.	Cost each.	No. built.	Per foot.	Total cost.		In assessment bills.	In City warrants.	Total cost.				
Cambridge street, from Duncan street to Tucker street	2 ft. 6 ins. by 1 ft. 8 ins.	717.5				11	$50 00	1826. house cons.	$0 60	1,095 60	$1 49	$3,693 04		$3,693 04	$4 39	Louis Munch, Jr.	Nicholas Cannoe	Dec. 28
	2 ft. 3 ins. by 1 ft. 6 ins.	789.									1 24				135 00			
Ditman st., from Wakeling street to Granite street	3 ft. by 2 ft.	407.25	2	1	$80 00	4	50 00	40.71 curved curb.	2 25	91 60	1 30	1,364 12	$596 29	1,960 41		E. S. DeHaven	Vincent Jafolla	Nov. 20
								36. str. curb.	1 50	54 00							
	2 ft. 3 ins. by 1 ft. 6 ins.	230.7	3	4	75 00			695. house cons.	60	417 00	1 25							
Daly street, from Front street to Second street	2 ft. 6 ins. by 1 ft. 8 ins.	406.5	3	1	75 00	3	50 00	13. curved curb.	2 25	29.25	2 30	1,155 00	958 34	2,113 34		Thomas MacElwee	H. A. McCleman & Bro.	Nov. 27
								312. C.I. house cons.	1 20	374 40							
								91.38 concrete.	5 50	502 59								
								94.30 excavation.	50	47 15								

Length and Cost of Branch Sewers Built During the Year 1911—Continued.

Location.	Size.	Length in feet.	Inlets.			Manholes.		Wellholes, curved curb, house connections, etc.			Cost per foot.	Payment.			Excess bills and balances.	Inspectors.	Contractors.	Date of final estimate.
			Size.	No. built.	Cost each.	No. built.	Cost each.	No. built.	Per foot.	Total cost.		In assessment bills.	In City warrants.	Total cost.				
Duncannon ave., from Broad st. to Fifteenth st.	2 ft. 6 ins. by 1 ft. 8 ins. vit. sh. br. inv.	402.75	2	2	$80 00	3	$50 00	curved curb. 28.	$2 25	$63 00	$2 78	603 50	$1,070 71	$1,674 21		John McCormick	John J. Connor	Dec. 12
	2 ft. 3 ins. by 1 ft. 6 ins. vit. sh. br. inv.	52.						str. curb. 6.	1 50	9 00	2 78							
	12 in. v. p.	10.						house conns. 30.	60	18 00	1 00							
Edgewood street, from Lansdowne avenue to Haddington street	2 ft. 3 ins. by 1 ft. 6 ins. vit. sh. br. inv.	503.	3	3	75 00	3	50 00	curved curb. 39.	2 25	87 75	2 30	1,186 00	826 45	2,012 45		B. F. Slack	Peter Ellis	Sept. 25
								curb reset. 4.	20	80								
								house conns. 650.	60	390 00	1 00							
Erie avenue, from Philadelphia, Germantown and Norristown Railroad to Twentieth street	3 ft. by 2 ft. vit. sh. br. inv.	494.48				4	50				3 25	591 40	1,215 36	1,807 06		W. E. Haley	David McMahon	Oct. 9

Length and Cost of Branch Sewers Built During the Year 1911—Continued.

Location.	Size.	Length in feet.	Inlets.			Manholes.		Wellholes, curved curb, house connections, etc.			Cost per foot.	Payment.			Excess bills and balances.	Inspectors.	Contractors.	Date of final estimate.
			Size.	No. built.	Cost each.	No. built.	Cost each.	No. built.	Per foot.	Total cost.		In assessment bills.	In City warrants.	Total cost.				
Erie avenue, from Front street to Second street	2 ft. 3 ins. by 1 ft. 6 ins.	2,132.	2	4	$80 00	16	$50 00	str. curb. 48.	$1 50	$72 00	$1 35	$2,971 40	$1,098 80	$4,070 20		Thomas Levens	Peter Ellis	Nov. 6
Elmwood avenue, from Sixtieth street to Sixty-second street	2 ft. 6 ins. by 1 ft. 8 ins.	635.				7	50 00				1 59		2,089 70	2,089 70		John Vicary	Robert Higgins	Nov. 14
	2 ft. 3 ins. by 1 ft. 6 ins.	465.									1 55							
	12 in. v. p.	57.									1 00							
Ellsworth street, from Fifty-eighth street to Fifty-ninth st.	2 ft. 3 ins. by 1 ft. 6 ins.	500.	?	1	75 00	4	50 00	curved curb. 15.71	2 25	35 35	1 69	1,359 00	67 15	1,426 15		John McCormick	McGlathery & Robb	Nov. 21
								str. curb. 6.	1 50	9 00								
								house conns. 378.	60	226 80								
	12 in. v. p.	35.									1 00							
Earp street, from Twenty-second st. to Twenty-third street	2 ft. 6 ins. by 1 ft. 8 ins.	449.				3	50 00	house conns. 216.	60	129 60	2 23	1,094 00	208 87	1,302 87		John P. Flood	William A. Ryan	Dec. 18
	12 in. v. p.	22.									1 00							

Length and Cost of Branch Sewers Built During the Year 1911—Continued.

Location.	Size.	Length in feet.	Inlets.			Manholes.		Wellholes, curved curb, house connections, etc.			Cost per foot.	Payment.			Excess bills and balances.	Inspectors.	Contractors.	Date of final estimate.
			Size.	No. built.	Cost each.	No. built.	Cost each.	No. built.	Per foot.	Total cost.		In assessment bills.	In City warrants.	Total cost.				
Elmwood avenue, from Seventy-first street to Seventy-third st.	3 ft. 6 ins. by 2 ft. 4 ins. vit. sh. br. inv.	520.	2	4	$80 00	14	$50 00	curved curb. 71.73	$2 25	$161 39	$2 18	$2,287 50	$2,552 52	$4,840 02	----------	Harry J. Bader	Robert Higgins	Dec. 12
	2 ft. 6 ins. by 1 ft. 8 ins. vit. sh. br. inv.	532.	----	----	------	----	------	str. curb. 32.	1 50	48 00	1 69							
	2 ft. 3 ins. by 1 ft. 6 ins.	930.	----	----	------	----	------	rubble masonry. 0.5	4 50	2 25	1 69							
	12 in. v. p.	4.	----	----	------	----	------	----------	------	--------	1 00							
Elliott st., from Fifty-fifth street to Fifty-sixth street	2 ft. 3 ins. by 1 ft. 6 ins. vit. sh. br. inv.	450.	3	1	75 00	3	50 00	curved curb. 15.71	2 25	35 35	2 34	1,112 00	464 85	1,576 85	----------	Matthew Sullivan	William A. Ryan	Dec. 20
								str. curb. 6.	1 50	9 00								
								house conns. 345.	60	207 00								
								concrete. 8.	5 50	44 00								
	12 in. v. p.	43.	----	----	------	----	------	excavation. 11.	50	5 50	1 00							

Length and Cost of Branch Sewers Built During the Year 1911—Continued.

Location.	Size.	Length in feet.	Inlets.			Manholes.		Wellholes, curved curb, house connections, etc.			Cost per foot.	Payment.			Excess bills and balances.	Inspectors.	Contractors.	Date of final estimate.
			Size.	No. built.	Cost each.	No. built.	Cost each.	No. built.	Per foot.	Total cost.		In assessment bills.	In City warrants.	Total cost.				
Fifty-seventh st., from Ludlow st. to Chestnut st., and in Ludlow st. from Fifty-seventh st. to Fifty-eighth st.	2 ft. 3 ins. by 1 ft. 6 ins.	788.5	3	1	$75 00	6	$50 00	curved curb. 15.71	$2 25	$35 35	$1 54	$1,787 41	$366 23	$2,153 64		P. F. McGough	Grugan & Co.	Feb. 7
	12 in. v. p.	53.						str. curb. 6.	1 50	9 00	1 00							
	12 in. v. p.	14.						house cons. 755.	60	453 00	1 00							
Fifth street (east side), from Annsbury street to Courtland st.	2 ft. 6 ins. by 1 ft. 8 ins.	278.	2	1	50 00	2	50 00	curved curb. 52.7	2 25	118 58	1 62	330 00	700 27	1,080 27		Harry E. Shay	Peter Ellis	Aug. 14
								str. curb. 12.25	1 50	18 38								
								house cons. 112.	60	67 20								
			3	2	75 00			rubble masonry. 5.1	4 50	22 95								
								Y. P. timber. 570.	40 00	22 80								
Fifty-fourth st., from Cedar ave. to Fitzwater st.	2 ft. 3 ins. by 1 ft. 6 ins.	227.				2	50 00	house cons. 340.	60	204 00	1 88	627 18	123 58	750 76		Thomas McElwee	John A. Robb	Sept. 1
	12 in. v. p.	20.									1 00							

Length and Cost of Branch Sewers Built During the Year 1911—Continued.

Location.	Size.	Length in feet.	Inlets. Size.	Inlets. No. built.	Inlets. Cost each.	Manholes. No. built.	Manholes. Cost each.	Wellholes, curved curb, house connections, etc. No. built.	Wellholes, curved curb, house connections, etc. Per foot.	Wellholes, curved curb, house connections, etc. Total cost.	Cost per foot.	Payment. In assessment bills.	Payment. In City warrants.	Payment. Total cost.	Excess bills and balances.	Inspectors.	Contractors.	Date of final estimate.
Front st., from Wyoming ave to Loudon st.	2 ft. 6 ins. by 1 ft. 8 ins. vit. sh. br. inv.	277.	3	1	$75 00	4	$50 00	house conns. 1,065.	$0 60	$639 00	$1 42	$1,305 74	$356 60	$1,662 34		C. A. Crossin	Patrick Durkin	Sept. 2
	2 ft. 6 ins. by 1 ft. 8 ins.	250.									1 42							
Fisher ave., from Front street to Mascher street	2 ft. 6 ins. by 1 ft. 8 ins. vit sh. br. inv.	521.	2	1	80 00	4	50 00	curved curb. 15.	2 25	34 20	2 15	1,229 31	257 04	1,486 35		John McCormick	John J. Connor	Sept. 18
	2 ft. 6 ins. by 1 ft. 8 ins.	26.									2 00							
Fifty-ninth st., from Lansdowne avenue to Haddington street	3 ft. 3 ins. by 2 ft. 2 ins. vit. sh. br. inv.	545.	2	1	80 00	4	50 00	curved curb. 25.	2 25	56 25	2 13	1,264 25	935 95	2,200 20		John J. MacVeigh B. F. Slack	Alfonso Perna	Nov. 27
	2 ft. 3 ins. by 1 ft. 6 ins. vit. sh. br. inv.	39.	3	1	75 00			house conns. 814.	60	488 40	2 30							
	12 in. v. p.	50.									1 00							

Length and Cost of Branch Sewers Built During the Year 1911—Continued.

Location.	Size.	Length in feet.	Inlets. Size.	Inlets. No. built.	Inlets. Cost each.	Manholes. No. built.	Manholes. Cost each.	Wellholes, curved curb, house connections, etc. No. built.	Wellholes, curved curb, house connections, etc. Per foot.	Wellholes, curved curb, house connections, etc. Total cost.	Cost per foot.	Payment. In assessment bills.	Payment. In City warrants.	Payment. Total cost.	Excess bills and balances.	Inspectors.	Contractors.	Date of final estimate.
Front st., from Jackson street to Wolf street	3 ft. by 2 ft.	460.	3	6	$75 00	4	$50 00	78. curved curb.	$2 25	$175 75	$3 31	$761 00	$3,111 21	$3,872 21		Thomas MacElwee	Joseph Lombardi	Dec. 12
	2 ft. 6 ins. by 1 ft. 8 ins.	147.						69. house conns.	60	41 40								
								165.04 concrete.	5 50	907 72	3 27							
								182.59 excavation.	50	91 30								
	12 in. v. p.	3.									1 00							
Fallon st., from Paschall avenue to Grays Ferry avenue	2 ft. 3 ins. by 1 ft. 6 ins. vit. sh. br. inv.	355.56				3	50 00				2 16	792 79	118 92	911 71		Albert L. Smith	McGlathery & Robb	Dec. 18
	12 in. v. p.	54.									1 00							
	8 in. v. p.	2.									75							
	12 in. v. p.	3.									1 00							
Fernon st., from Twentieth street to Twenty-second street	2 ft. 3 ins. by 1 ft. 6 ins.	940.				6	50 00	612. house conns.	60	367 20	1 53	2,114 90		2,114 90	$0 85	John P. Flood	Joseph Lombardi	Dec. 30
	12 in. v. p.	9.5									1 00				189 00			

Length and Cost of Branch Sewers Built During the Year 1911—Continued.

Location.	Size.	Length in feet.	Inlets.			Manholes.		Wellholes, curved curb, house connections, etc.			Cost per foot.	Payment.			Excess bills and balances.	Inspectors.	Contractors.	Date of final estimate.
			Size.	No. built.	Cost each.	No. built.	Cost each.	No. built.	Per foot.	Total cost.		In assessment bills.	In City warrants.	Total cost.				
Garnet st., from Reed street to Wharton street	2 ft. 6 ins. by 1 ft. 8 ins.	412.				3	$50 00	house conns. 153.	$0 60	$91 80	$2 23	$876 65	$303 91	$1,180 56		Robert I. MacFarland	William A. Ryan	Nov. 13
	12 in. v. p.	20.									1 00							
Garnet st., from Dickinson street to Tasker street	2 ft. 6 ins. by 1 ft. 8 ins.	443.				3	50 00	house conns. 260.	60	156 00	2 04	1,086 00	141 72	1,227 72		Robert I. MacFarland	William A. Ryan	Nov. 20
	12 in. v. p.	18.									1 00							
Granite st., from Cedar street to Willow street	2 ft. 3 ins. by 1 ft. 6 ins.	440.2	3	1	$75 00	3	50 00	house conns. 594.	60	356 40	1 79	1,171 28	198 08	1,369 36		John S. Kelly	Emilio Pasazzi	Nov. 20
Gerritt st., from Twenty-second st. to Twenty-third street	2 ft. 6 ins. by 1 ft. 8 ins.	450.	rebuilt. 3	1	45 00	3	50 00	house conns. 216.	60	129 60	2 20	1,098 54	216 06	1,314 60		E. E. Myers	William A. Ryan	Dec. 18
Grays ave., from Seventy-first st. to Seventy-second street	2 ft. 3 ins. by 1 ft. 6 ins.	450.	3	2	75 00	3	50 00	curved curb. 43.7	2 25	98 33	1 18	1,350 00	249 63	1,599 63		Frank H. Curley	William A. Ryan	Dec. 30
								str. curb. 12.	1 50	18 00								
								house conns. 1,012.	60	607 20								
								concrete.										
	12 in. v. p.	44.						0.2	5 50	1 10	1 00							

Length and Cost of Branch Sewers Built During the Year 1911—Continued.

Location.	Size.	Length in feet.	Inlets. Size.	Inlets. No. built.	Inlets. Cost each.	Manholes. No. built.	Manholes. Cost each.	Wellholes, curved curb, house connections, etc. No. built.	Wellholes, curved curb, house connections, etc. Per foot.	Wellholes, curved curb, house connections, etc. Total cost.	Cost per foot.	Payment. In assessment bills.	Payment. In City warrants.	Payment. Total cost.	Payment. Excess bills and balances.	Inspectors.	Contractors.	Date of final estimate.
Hawthorne street, from Pratt st. to Wakeling st.	3 ft. by 2 ft.	252.	2	1	$80 00	4	$50 00	curved curb. 45.42	$2 25	$102 20	$4 76	$1,637 85	$3,027 03	$4,664 88		C. G. MacMullen	Lombardi & Perna	May 9
	2 ft. 3 ins. by 1 ft. 6 ins. vit. sh. br. inv.	445.2	3	2	75 00			street curb. 12. house conns. 1,120.	1 50 60	18 00 672 00	4 76							
	2 ft. 3 ins. by 1 ft. 6 ins.	20.4						concrete. 1.91	5 50	10 51	4 76							
	12 in. v. p.	6.						excavation. 20.80	50	10 40	1 00							
Haworth street, from Horresdale avenue to Ditman street	2 ft. 6 ins. by 1 ft. 8 ins.	392.	3	1	75 00	3	50 00	street curb. 6. house conns. 472.	1 50 60	9 00 283.20	1 25	843 51	163 69	1,007 20		J. M. Donnelly	Vincent Jafolla	Sept. 25
Hanson st., from Paschall avenue to Grays Ferry avenue	2 ft. 3 ins. by 1 ft. 6 ins.	475.25				3	50 00				1 86	1,093 30	22 67	1,115 97		Albert L. Smith	John A. Robb	Dec. 4
	12 in. v. p.	82.									1 00							

Length and Cost of Branch Sewers Built During the Year 1911—Continued.

Location.	Size.	Length in feet.	Inlets.			Manholes.		Wellholes, curved curb, house connections, etc.			Cost per foot.	Payment.			Excess bills and balances.	Inspectors.	Contractors.	Date of final estimate.
			Size.	No. built.	Cost each.	No. built.	Cost each.	No. built.	Per foot.	Total cost.		In assessment bills.	In City warrants.	Total cost.				
Haworth street, from Ditman st. to Glenloch st.	2 ft. 3 ins. by 1 ft. 6 ins.	383.4	3	1	$75 00	3	$50 00	curved curb. 21.	$2 25	$47 25	$1 48	$1,026 49	$174 39	$1,200 88	----------	E. S. DeHaven	Patrick Durkin	Dec. 11
								str. curb. 6.	1 50	9 00								
								house cons. 512.	60	307 20								
		----------	4	1	45 00	----	----											
Jefferson street, from Gross st. to a point about 120 feet east	2 ft. 3 ins by 1 ft. 6 ins.	145.	2	1	80 00	1	50 00	curved curb. 12.	2 25	27 00	2 20	280 00	220 00	500 00	----------	P. F. McGough	William A. Ryan	Sept. 15
								house cons. 40.	60	24 00								
James st., from Margaret street to Tucker street	2 ft. 6 ins. by 1 ft. 8 ins.	611.7	3	1	75 00	4	50 00	str. curb. 12.	1 50	18 00	1 33	1,663 54	60 42	1,723 96	----------	Louis Munch, Jr.	Nicholas Cannoe	Nov. 13
								house cons. 1,029.	60	617 40								
Johnson st., from Magnolia street to Morton street	2 ft. 3 ins. by 1 ft. 6 ins.	450.67	----	----	------	3	50 00	house cons. 330.	60	198 00	2 61	1,174 56	349 69	1,524 25	----------	Eugene Emery	Robert P. Ryan	Nov. 27

Length and Cost of Branch Sewers Built During the Year 1911—Continued.

Location.	Size.	Length in feet.	Inlets. Size.	Inlets. No. built.	Inlets. Cost each.	Manholes. No. built.	Manholes. Cost each.	Wellholes, curved curb, house connections, etc. No. built.	Wellholes, curved curb, house connections, etc. Per foot.	Wellholes, curved curb, house connections, etc. Total cost.	Cost per foot.	Payment. In assessment bills.	Payment. In City warrants.	Payment. Total cost.	Excess bills and balances.	Inspectors.	Contractors.	Date of final estimate.
Jackson st., from Front street to Second street								curved curb. 22.	$2 25	$49 50								
	2 ft. 6 ins. by 1 ft. 8 ins.	385.	3	2	$75 00	4	$50 00	curb rest. 17.	20	3 40	2 25	$921 50	$597 80	$1,519 30		Thomas MacElwee	H. A. McCleman & Bro.	Dec. 29
								house conns. 276.	60	165 60								
	12 in. v. p.	72.						repaving. 2.77	25	0 69	1 00							
								5.93	2 00	11 86								
Kershaw st., from Fifty-third st. to Fifty-fourth street	2 ft. 3 ins. by 1 ft. 6 ins.	380.	3	1	75 00	3	50 00	curved curb. 13.67	2 25	30 76	1 65	865 57	186 79	1,052 36		John Bishop	Peter Ellis	Nov. 20
	12 in. v. p.	10.						house conns. 266.	60	159 60	1 00							
Locust ave., from Magnolia street to Musgrave st.	2 ft. 3 ins. by 1 ft. 6 ins.	670.5	2	1	80 00	6	50 00	str. curb. 13.	1 50	19 50	2 13	1,827 67		1,827 67	8 89	George H. Schmunk	David McMahon	Jan. 30
Leithgow street, from Reed street to Earp street	2 ft. 3 ins. by 1 ft. 6 ins.	290.67	rebuilt. 4	2	45 00	3	50 00	curved curb. 21.	2 25	47 25	1 94	740 62	230 06	970 68		A. L. Smith	Emilio Pascuzzi	Aug. 7
	8 in. v. p.	7.						curb rest. 21.42	20	4 28	75							
	12 in. v. p.	8.						house conns. 170.	60	102 00	1 00							

Length and Cost of Branch Sewers Built During the Year 1911—Continued.

Location.	Size.	Length in feet.	Inlets			Man holes.		Wellholes, curved curb), house connections, etc.			Cost per foot.	Payment.			Excess bills and balances.	Inspectors.	Contractors.	Date of final estimate.
			Size.	No. built.	Cost each.	No. built.	Cost each.	No. built.	Per foot.	Total cost.		In assessment bills.	In City warrants.	Total cost.				
Lambert street, from Cora st. to Medary ave.	2 ft. 3 ins. by 1 ft. 6 ins.	289.25	2	1	$80 00	3	$50 00	str. curb. 12.	$1 50	$18 00	$3 27	$600 30	$836 55	$1,436 85		John McCrea	Richard P. Bennis	Sept. 19
	12 in. v. p.	8.						house cons. 400.	60	240 00	1 00							
Lawrence street, from Reed st. to Earp street	2 ft. 6 ins. by 1 ft. 8 ins. Constructed for 2 ft. 3 ins. by 1 ft. 6 ins.	314.17	rebuilt. 3	1	45 00	3	50 00	curved curb. 10.	2 25	22 50	1 61	791 73	67 58	859 31		F. D. W. Morris	Alfonso Perna	Oct. 23
								house cons. 200.	60	120 00								
	12 in. v. p.	8.									1 00							
	12 in. v. p.	8.									1 00							
Loudon st., from Twelfth st. to Camac street	3 ft. 3 ins. by 2 ft. 2 ins. vit. sh. br. inv.	219.	2	2	80 00	2	50 00	curved curb. 30.4	2 25	68 40	1 95	411 00	573 75	984 75		F. D. W. Morris	John J. Connor	Oct. 30
	2 ft. 6 ins. by 1 ft. 8 ins.	25.						house cons. 174.	60	104 40	1 90							
	2 ft. 3 ins. by 1 ft. 6 ins.	43.									1 80							

Length and Cost of Branch Sewers Built During the Year 1911—Continued.

Location.	Size.	Length in feet.	Inlets. Size.	Inlets. No. built.	Inlets. Cost each.	Manholes. No. built.	Manholes. Cost each.	Wellholes, curved curb, house connections, etc. No. built.	Wellholes, curved curb, house connections, etc. Per foot.	Wellholes, curved curb, house connections, etc. Total cost.	Payment. Cost per foot.	Payment. In assessment bills.	Payment. In City warrants.	Payment. Total cost.	Excess bills and balances.	Inspectors.	Contractors.	Date of final estimate.
Lambert street, from Dickinson street to Tasker street	2 ft. 6 ins. by 1 ft. 8 ins.	442.5				3	$50 00	house connections. 234.	$0 60	$140 40	$2 06	$1,127 00	$91 95	$1,218 95		John P. Flood	Robert P. Ryan	Nov. 27
	12 in. v. p.	17.									1 00							
Media st., from Felton street to Sixty-third st.	3 ft. 3 ins. by 2 ft. 2 ins. vit. sh. br. inv.	315.				2	50 00	house connections. 59.	60	35 40	3 00	381 00	795 40	1,176 40		John N. Brown	William A. Ryan	Aug. 28
	2 ft. 3 ins. by 1 ft. 6 ins. vit. sh. br. inv.	32.									2 50							
	12 in. v. p.	16.									1 00							
Morris st., from Fourth street to Fifth street	2 ft. 6 ins. by 1 ft. 8 ins.	433.									2 33	887 49	330 40	1,217 89		John D. Henderson	Joseph Lombardi	Sept. 18
	12 in. v. p.	59.				3	50 00				1 00							
Mountain street, from Eighteenth street to Nineteenth street	2 ft. 3 ins. by 1 ft. 6 ins.	935.				6	50 00	house connections. 605.	60	363 00	1 49	2,081 15		2,081 15	$300 00	J. M. Donnelly		
	12 in. v. p.	25.									1 00				8 60	Millard F. Zell	Alfonso Perna	Dec. 11

Length and Cost of Branch Sewers Built During the Year 1911—Continued.

Location.	Size.	Length in feet.	Inlets.			Manholes.		Wellholes, curved curb, house connections, etc.			Cost per foot.	Payment.			Excess bills and balances.	Inspectors.	Contractors.	Date of final estimate.
			Size.	No. built.	Cost each.	No. built.	Cost each.	No. built.	Per foot.	Total cost.		In assessment bills.	In City warrants.	Total cost.				
Mitchell st., from Kingsley street to Markle st., and in Markle street from Pechin street to a point about 300 feet northeast of Mitchell st.	8 in. vit. pipe with 2 ft cir.	261.82	3	8	$75 00	7	$45 00	curved curb. 113.1	$2 25	$254 48	$4 00	$2,925 96	$4,538 52	$7,464 48	----------	Harry E. Shay	Donato Delise	Dec. 26
	8 in. vit. pipe with 15 in. vit. pipe	842.94	----	----	------	1	55 00	str. curb. 43.	1 50	72 00								
								house cons. 2,520.	60	1,512 00	3 50							
	15 in. vit. pipe	46.	----	----	------	----	------	concrete. 35.5	5 50	195 25	3 50							
	8 in. vit. pipe	45.65	----	----	------	----	------	rubble masonry. 6.2	4 50	27 90	5 50							
	12 in. vit. pipe	85.	----	----	------	----	------	excavation. 59.	50	29 50	1 00							
Meade st., from Ardleigh street to Anderson st.	10 in. vit. pipe with 2 ft. cir.	577.75	2	2	80 00	8	50 00	curved curb. 15.8	2 25	35 55	4 70	1,525 91	2,594 47	4,120 38	----------	Thomas J. Morrow	David McMahon	Dec. 29
								str. curb. 18.	1 50	27 00								
								house cons. 1,304.	60	782.40								

Length and Cost of Branch Sewers Built During the Year 1911—Continued.

Location.	Size.	Length in feet.	Inlets.			Manholes.		Wellholes, curved curb, house connections, etc.			Cost per foot.	Payment.			Excess bills and balances.	Inspectors.	Contractors.	Date of final estimate.
			Size.	No. built.	Cost each.	No. built.	Cost each.	No. built.	Per foot.	Total cost.		In assessment bills.	In City warrants.	Total cost.				
								wellholes.										
	2 ft. 3 ins. by 1 ft. 6 ins.	531.	2	1	$80 00	3	$50 00	38.	$7 00	$266 00	$1 81	$1,296 45	$781 37	$2,077 82		Robert I. MacFarland.	Robert P. Ryan.	April 12
								curved curb.										
								11.84	2 25	26 64								
								str. curb.										
Osage ave., from Forty-second st. to Forty-third street	12 in. v. p.	34.	3	1	75 00			9.3	1 50	13 95	1 00							
								house cons.										
								322.	60	193 20								
								concrete.										
								16.32	5 50	89 76								
								rubble masonry.										
								36.	4 50	162 00								
								excavation.										
								52.32	50	26 16								
								curved curb.										
								59.4	2 25	133 65								
Ormes st., from Ontario street to Tioga street	2 ft. 3 ins. by 1 ft. 6 ins.	580.	2	2	80 00	4	50 00	str. curb.			2 25	1,359 00	747 15	2,106 15		George Webb.	Donato Delise	Oct. 23
								12.	1 50	18 00								
								house cons.										
			3	2	75 00			420.	60	252 00								

Length and Cost of Branch Sewers Built During the Year 1911—Continued.

Location.	Size.	Length in feet.	Inlets.			Manholes.		Wellholes, curved curb, house connections, etc.			Cost per foot.	Payment.			Excess bills and balances.	Inspectors.	Contractors.	Date of final estimate.
			Size.	No. built.	Cost each.	No. built.	Cost each.	No. built.	Per foot.	Total cost.		In assessment bills.	In City warrants.	Total cost.				
Osage ave., from Fifty-fifth street to Fifty-sixth street	2 ft. 3 ins. by 1 ft. 6 ins.	561.	3	2	$75 00	4	$50 00	curved curb. 28.75	$2 25	$64 69	$2 70	$1,370 53	$1,654 86	$3,025 39		C. G. MacMullen	Joseph Perna	Dec. 11
								str. curb. 6.	1 50	9 00							
								house cons. 336.	60	201 60								
	12 in. v. p.	5.						excavation. 152.5	50	76 25	1 00							
								rubble masonry. 178.7	4 50	804 15								
Park ave., from Hunting Park avenue to Bristol street	2 ft. 6 ins. by 1 ft. 8 ins.	496.	3	1	75 00	4	50 00	str. curb. 12.	1 50	18 00	1 42	1,208 52		1,208 52	$55 50	John Hoyle	Patrick Durkin	Nov. 13
								house cons. 352.	60	211 20					3 48			
Pratt st., from Torresdale ave. to Ditman st.	2 ft. 6 ins. by 1 ft. 8 ins.	393.	3	1	75 00	3	50 00	curved curb. 13.	2 25	29 25	1 30	931 68	36 67	968 35		E. S. DeHaven	Vincent Jafolla	Nov. 20
								house cons. 312.	60	187 20								
	12 in. v. p.	16.									1 00							
Paxson st., from Chester avenue to Springfield avenue	2 ft. 3 ins. by 1 ft. 6 ins.	469.	3	2	75 00	3	50 00	curved curb. 30.93	2 25	69 59	1 60	1,021 74	285 25	1,306 99		George Moore	William A. Ryan	Dec. 18
								str. curb. 6.	1 50	9 00								
								house cons. 210.	60	126 00								
	12 in. v. p.	52.									1 00							

Length and Cost of Branch Sewers Built During the Year 1911—Continued.

Location.	Size.	Length in feet.	Inlets. Size.	Inlets. No. built.	Inlets. Cost each.	Manholes. No. built.	Manholes. Cost each.	Wellholes, curved curb, house connections, etc. No. built.	Per foot.	Total cost.	Cost per foot.	Payment. In assessment bills.	Payment. In City warrants.	Payment. Total cost.	Excess bills and balances.	Inspectors.	Contractors.	Date of final estimate.
Race st., (north side), from Sixty-fifth street to Sixty-sixth st...								str. curb.										
	3 ft. by 2 ft.	540.	2	3	$80 00	3	$50 00	6.	$1 50	$9 00	$1 60	$562 50	$8,538 80	$9,101 30		Eugene Emery	William A. Ryan	Feb. 27
	2 ft. 3 ins. by 1 ft. 6 ins. vit. sh. br. inv.	29.	3	1	35 00			rubble masonry. 1,670.3	4 50	7,516 35	1 60							
								excavation. 329.6	50	164 80	1 25							
	15 in. v. p.	19.									1 00							
	12 in. v. p.	52.																
Reynolds street, from Richmond street to Garden street	2 ft. 3 ins. by 1 ft. 6 ins.	407.7				3	45 00				1 75	848 48		848 48	$0 18 4 05	Millard F. Zell	Emilio Pascuzzi	Aug. 15
Robinson street, from Arch st. to Race street...								curved curb. 13.	2 25	29 25								
	2 ft. 3 ins. by 1 ft. 6 ins.	500.	3	1	75 00	3	50 00	house conns. 640.	60	384 00	2 93	1,440 00	1,050 75	2,490 75		George H. Schmunk	Joseph Lombardi	Sept. 18
								excavation. 37.59	50	18 80								
	12 in. v. p.	22.						concrete. 37.59	5 50	206 75	1 00							
								steel bars. 4665.	03	139 95								

Length and Cost of Branch Sewers Built During the Year 1911—Continued.

Location.	Size.	Length in feet.	Inlets.			Manholes.		Wellholes, curved curb, house connections, etc.			Cost per foot.	Payment.			Excess bills and balances.	Inspectors.	Contractors.	Date of final estimate.
			Size.	No. built.	Cost each.	No. built.	Cost each.	No. built.	Per foot.	Total cost.		In assessment bills.	In City warrants.	Total cost.				
Schuyler st., from Hunting Park ave. to Ruffner street	3 ft. 6 ins. by 2 ft. 4 ins.	468.	3	3	$75 00	2	$50 00	curved curb. 38.63	$2 25	$86 92								
								str. curb. 12.	1 50	18 00	$2 27	$662 00	$1,070 98	$1,832 98	----------	Eugene Emery	Vincent Jafolla	Sept. 18
	2 ft. 3 ins. by 1 ft. 6 ins.	105.	4	1	45 00	----	------	house cons. 147.	60	88 20	1 50								
Springer st., from Ross street to a point about 330 feet northeast	15 in. vit. pipe	322.25	----	----	------	3	50 00	house cons. 352.	60	211 20	2 34	877 06	238 21	1,115 27	----------	John Hoyle	Joseph Moss	Sept. 25
Sixty-first street, from Christian street to Fitzwater street	2 ft. 3 ins. by 1 ft. 6 ins.	725.65	3	2	75 00	6	50 00	str. curb. 22.	1 50	33 00	1 59	1,806 98	----------	1,806 98	$1 19	John P. Flood	John A. Robb	Oct. 17
	12 in. v. p.	43.	----	----	------	----	------	house cons. 212.	60	127 20	1 00	----------	----------	----------	165 00			
Seventy-first st., from Elmwood avenue to the Philadelphia, Baltimore and Washington R. R.	3 ft. by 2 ft. vit. sh. br. inv.	563.	2	2	80 00	6	50 00	curved curb. 30.36	2 25	68 31	1 38	1,811 00	747 05	2,558 05	----------	Frank H. Curley	Joseph Lombardi	Nov. 27
	2 ft. 3 ins. by 1 ft 6 ins. vit. sh. br. inv.	190.	----	----	------	----	------	house cons. 1,490.	60	894 00	1 38								
	2 ft. 6 ins. by 1 ft. 8 ins.	45.	----	----	------	----	------	----------	----------	----------	1 38								
	2 ft. 3 ins. by 1 ft. 6 ins.	25.	----	----	------	----	------	----------	----------	----------	1 38								

Length and Cost of Branch Sewers Built During the Year 1911—Continued.

Location.	Size.	Length in feet.	Inlets.			Manholes.		Wellholes, curved curb, house connections, etc.			Cost per foot.	Payment.			Excess bills and balances.	Inspectors.	Contractors.	Date of final estimate.
			Size.	No. built.	Cost each.	No. built.	Cost each.	No. built.	Per foot.	Total cost.		In assessment bills.	In City warrants.	Total cost.				
Stiles st., from Duncan street to Tucker street	2 ft. 3 ins. by 1 ft. 6 ins.	1,677.3				13	$50 00	house conns. 2,250.	$0 60	1,350 00	$1 21	$4,248 54		$1,248 54	$689 50	Rudolph C. Harris	Nicholas Cannoe	Nov. 27
	12 in. v. p.	181.									1 21				1 95			
Sixty-fifth street, from Cobbs creek to Kingsessing avenue, and in Chester ave., from Sixty-fifth street to Sixty-fifth street (southeast from Chester ave.)	3 ft. 6 ins. by 2 ft. 4 ins. vit. sh. br. inv.	177.	1	2	$90 00	12	50 00	wellhole s. 28.	$7 00	196 00	3 25	5,258 13	$3,695 18	8,953 31		George M. Raphael	Emilio Pascuzzi	Dec. 11
	3 ft. by 2 ft. vit. sh. br. inv.	677.	2	2	80 00			curved curb. 11.9	2 25	26 78	3 95							
	3 ft. by 2 ft.	874.6	3	2	75 00			str. curb. 66.	1 50	99 00	2 79							
	2 ft. 3 ins. by 1 ft. 6 ins.	507.						excavation. 52.29	50	26 15	2 79							
	15 in. v. p.	35.						concrete. 42.88	5 50	235 84	1 25							
	12 in. v. p.	6.						rubble masonry. 27.94	4 50	125 73	1 00							
Sigel street, from Eleventh street west to dead end	2 ft. 3 ins. by 1 ft. 6 ins.	204.				2	50 00	house conns. 81.	60	48 60	2 27	545 84	65 84	611 68		W. E. Haley	Joseph Lombardi	Dec. 19
Sears street, from Twenty-second st. to Twenty-third street	2 ft. 6 ins. by 1 ft. 8 ins.	449.				3	50 00	house conns. 216.	60	129 60	2 21	1,094 00	199 89	1,293 89		George H. Schmunk	William A. Ryan	Dec. 18
	12 in. v. p.	22.									1 00							

Length and Cost of Branch Sewers Built During the Year 1911—Continued.

Location.	Size.	Length in feet.	Inlets.			Manholes.		Wellholes, curved curb, house connections, etc.			Cost per foot.	Payment.			Excess bills and balances.	Inspectors.	Contractors.	Date of final estimate.
			Size.	No. built.	Cost each.	No. built.	Cost each.	No. built.	Per foot.	Total cost.		In assessment bills.	In City warrants.	Total cost.				
Seventy-second st., from Elmwood avenue to the Philadelphia, Baltimore and Washington R. R.	2 ft. 6 ins. by 1 ft. 8 ins.	568.	2	1	$80 00	6	$50 00	curved curb. 15.18	$2 25	$34 16	$1 38	$1,645 77	$739 16	$2,384 93		Frank K. Curley	Joseph Lombardi	Dec. 26
								str. curb. 12.	1 50	18 00							
	2 ft. 3 ins. by 1 ft. 6 ins. vit. sh. br. inv.	200.	3	1	75 00			house cons. 1,220.	60	732 00	1 38							
	2 ft. 3 ins. by 1 ft. 6 ins.	45.						concrete. 3.85	5 50	21 18	1 38							
	12 in. v. p.	2.						excavation. 1.3	0 50	65	1 00							
Sixteenth street, from Courtland st. to Wyoming avenue	2 ft. 6 ins. by 1 ft. 8 ins.	740.				6	50 00	house cons. 952.	60	541 20	1 60	1,010 00	3,392 20	4,402 20		J. H. Tomlinson	John J. Connor	Dec. 29
								rubble masonry. 370.4	4 50	1,666 80								
								concrete. 79.	5 50	434 50								
	12 in. v. p.	21.						excavation. 449.4	50	224 70	1 00							

Length and Cost of Branch Sewers Built During the Year 1911—Continued.

Location.	Size.	Length in feet.	Inlets. Size.	Inlets. No. built.	Inlets. Cost each.	Manholes. No. built.	Manholes. Cost each.	Wellholes, curved curb, house connections, etc. No. built.	Wellholes, curved curb, house connections, etc. Per foot.	Wellholes, curved curb, house connections, etc. Total cost.	Cost per foot.	Payment. In assessment bills.	Payment. In City warrants.	Payment. Total cost.	Payment. Excess bills and balances.	Inspectors.	Contractors.	Date of final estimate.
Tabor road, from Front street to Rising Sun ave.	3 ft. 3 ins. by 2 ft. 2 ins. vit. sh. br. inv.	487.	2	1	$80 00	9	$50 00	curved curb. 16.	$2 25	$36 00	$2 90	---------	$4,195 75	$4,195 75	$2,095 42	William S. Manser.		
	3 ft. by 2 ft.	225.5	3	4	75 00	----	------	str. curb. 12.	1 50	18 00	2 70					Eugene Emery	John J. Connor.	Mar. 28
	3 ft. by 2 ft. vit. sh. br. inv.	84.	----	----	-------	----	------	----------	------	-------	2 70							
	2 ft. 6 ins. by 1 ft. 8 ins. vit. sh. br. inv.	384.	----	----	-------	----	------	----------	------	-------	2 70							
Torresdale ave., from Bridge st. to Wakeling st.	3 ft. by 2 ft.	628.5	3	5	75 00	10	50 00	curved curb. 68.84	2 25	154 89	1 54	$1,727 50	2,670 21	4,397 71	---------	J. H. Tomlinson	Adolph Jafolla	April 12
	2 ft. 6 ins. by 1 ft. 8 ins.	1,021.8	2 re built.	2	80 00	----	------	str. curb. 44.37	1 50	66 56	1 54							
	12 in. v. p.	36.	2	1	45 00	----	------	house conns. 758.	60	454 80	1 00							
	15 in. v. p.	8.	3	1	45 00	----	------	----------	------	-------	1 25							
	12 in. v. p.	9.	----	----	-------	----	------	----------	------	-------	1 00							
Twenty-first st., from Snyder avenue to Passyunk avenue	3 ft. 3 ins. by 2 ft. 2 ins.	531.5	2	5	80 00	5	50 00	curved curb. 60.	2 25	135 00	1 61	2,212 50	841 62	3,054 12	---------	J. M. Donnelly		
	3 ft. by 2 ft.	414.5	4	1	45 00	1	60 00	house conns. 1,224.	60	734 40	1 31					B. H. Smithson	Lombardi & Perna	June 30
	12 in. v. p.	31.	----	----	-------	----	------	----------	------	-------	1 00							

Length and Cost of Branch Sewers Built During the Year 1911—Continued.

Location.	Size.	Length in feet.	Inlets.			Manholes.		Wellholes, curved curb, house connections, etc.			Cost per foot.	Payment.			Excess bills and balances.	Inspectors.	Contractors.	Date of final estimate.
			Size.	No. built.	Cost each.	No. built.	Cost each.	No. built.	Per foot.	Total cost.		In assessment bills.	In City warrants.	Total cost.				
Toronto st., from Twentieth street to Twenty-first street	2 ft. 6 ins. by 1 ft. 8 ins.	481.25	3	1	$75 00	4	$50 00	str. curb. 12.	$1 50	$18 00	$1 63	$1,116 99	$213 50	$1,330 49	----------	John Doyle	Peter Ellis	Aug. 21
	10 in. v. p.	39.						house cons. 373.	60	223 80	75							
Thompson street, from Ontario street to Schiller street	3 ft. by 2 ft.	399.5	3	4	75 00	2	50 00	curved curb. 71.	2 25	159 75	1 15	967 49	383 59	1,351 08	----------	E. E. Myers	Vincent Jafolla	Sept. 18
	2 ft. 3 ins. by 1 ft. 6 ins.	18.				1	60 00	house cons. 360.	60	216 00	1 15							
	12 in. vit. pipe	32.									1 10							
Third street, from Wingohocking creek to Bristol street	2 ft. 6 ins. by 1 ft. 8 ins. vit. sh. br. inv.	1,510.	2	2	80 00	9	50 00	curved curb. 105.5	2 25	237 38								
								str. curb. 25.2	1 50	37 80	1 42	3,354 02	1,400 28	4,754 30	----------	August Durr	Patrick Durkin	Oct. 9
	2 ft. 6 ins. by 1 ft. 8 ins.	46.	3	4	75 00	----	------	house cons. 2,054.	60	1,232 40	1 42								
								concrete. 9.2	5 50	50 60								
								rubble masonry. 14.8	4 50	66 60								
								excavation. 20.	50	10 00								

Length and Cost of Branch Sewers Built During the Year 1911—Continued.

Location.	Size.	Length in feet.	Inlets.			Manholes.		Wellholes, curved curb, house connections, etc.			Cost per foot.	Payment.			Excess bills and balances.	Inspectors.	Contractors.	Date of final estimate.
			Size.	No. built.	Cost each.	No. built.	Cost each.	No. built.	Per foot.	Total cost.		In assessment bills.	In City warrants.	Total cost.				
Twenty-sixth st., from Oakdale street to Lehigh avenue	2 ft. 6 ins. by 1 ft. 8 ins.	122.5	rebuilt. 3	1	$45 00	1	$50 00	curved curb. 10.15	$2 25	$22 84	$2 75	$247 00	$207 72	$454 72		Matthew Sullivan	Vincent Jafolla	Oct. 23
Tulpehocken st., from Germantown avenue to Baynton street	2 ft. 3 ins. by 1 ft. 6 ins. vit. sh. br. inv.	754.	2	3	80 00	6	50 00	curved curb. 50.	2 25	112 50	6 40	1,828 10	4,098 70	5,926 80		W. W. Brinkworth	Richard Bennis	Oct. 30
								str. curb. 24.	1 50	36 00							
	15 in. v. p.	10.	rebuilt. 3	1	75 00			house conns. 592.	60	355 20	1 25							
Twenty-ninth st. (west side), Allegheny ave. to Clearfield st.	12 in. vit. pipe with 2 ft. 6 in. cir.	573.45	3	3	75 00	7	50 00	str. curb. 36.	1 50	54 00	2 65	640 49	1,656 70	2,297 19		John Doyle	Vincent Jafolla	Dec. 18
								house conns. 4.	60	2 40	1 75							
	2 ft. 6 in. cir.	8.81						Y. P. timber. 990.	40 00	39 60	75							
	12 in vit. pipe	8.84						rubble masonry. 10.	4 50	45 00	1 00							
	12 in. v. p.	26.									75							
	10 in. v. p.	18.																

Length and Cost of Branch Sewers Built During the Year 1911—Continued.

Location.	Size.	Length in feet.	Inlets. Size.	Inlets. No. built.	Inlets. Cost each.	Manholes. No. built.	Manholes. Cost each.	Wellholes, curved curb, house connections, etc. No. built.	Per foot.	Total cost.	Cost per foot.	Payment. In assessment bills.	Payment. In City warrants.	Payment. Total cost.	Excess bills and balances.	Inspectors.	Contractors.	Date of final estimate.
Tree street, from Front street to Second street	2 ft. 6 ins. by 1 ft. 8 ins.	406.5	3	1	$75 00	3	$50 00	curved curb. 13.	$ 25	$29 25								
								house cons. 300.	1 20	360 00	$2 30	$1,155 00	$1,009 53	$2,164 53	---------	Thomas MacElwee	H. A. McCleman & Bro.	Dec. 21
								concrete. 102.31	5 50	562 71								
								excavation. 105.23	50	52 62								
Tabor st., from Second street to Fourth street	3 ft. by 2 ft. vit. sh. br. inv.	279.	2	1	80 00	8	50 00	curved curb. 61.8	2 25	139 05								
								str. curb. 23.5	1 50	35 25	1 90	2,006 93	1,052 48	3,059 41	Deduct for work not done $100. Extra work $15.41.	William B. Thomas	John J. Connor.	Dec. 27
	3 ft. by 2 ft.	678.	3	3	75 00	----	------	house cons. 857.	60	514 20	1 80							
Webster st., from Twelfth street to Thirteenth street	2 ft. 3 ins. by 1 ft. 6 ins.	429.	3	2	75 00	3	45 00	curved curb. 12.58	2 25	28 31	2 25	1,044 44	225 54	1,269 98	---------	Frank K. Curley	Joseph Lombardi	Aug. 14

Length and Cost of Branch Sewers Built During the Year 1911—Continued.

Location.	Size.	Length in feet.	Inlets.			Manholes.		Wellholes, curved curb, house connections, etc.			Cost per foot.	Payment.			Excess bills and balances.	Inspectors.	Contractors.	Date of final estimate.
			Size.	No. built.	Cost each.	No. built.	Cost each.	No. built.	Per foot.	Total cost.		In assessment bills.	In City warrants.	Total cost.				
Walton avenue, from Sixty-first street to Sixty-second street	2 ft. 3 ins. by 1 ft. 6 ins.	513.				4	$50 00	house conns. 794.	$0 60	$476 40	$1 49	$1,317 33	$125 44	$1,442 77		John Hare John P. Flood	John A. Robb	Sept. 19
	12 in. v. p.	2.									1 00							
Westmoreland st., from Goodman st. to Germantown avenue	2 ft. 3 ins. by 1 ft. 6 ins. vit. sh. br. inv.	272.	2	2	$80 00	5	50 00	curved curb. 76.4	2 25	171 90								
								str. curb. 22.35	1 50	33 53	1 53	1,606 12	804 87	2,410 99		Thomas J. Morrow	Peter Ellis	Sept. 27
	2 ft. 3 ins. by 1 ft. 6 ins.	460.	3	3	75 00			house conns. 797.	60	478 20	1 47							
Watts st., from Airdrie street to Butler street	2 ft. 3 ins. by 1 ft. 6 ins.	310.	3	1	75 00	3	50 00	str. curb. 12.	1 50	18 00	1 30	646 00		646 00	$11 50 70 00	John N. Brown	Patrick Durkin	Oct. 17
Water st., from Snyder ave. to Jackson street	2 ft. 6 ins. by 1 ft. 8 ins.	438.5	3	2	75 00	3	50 00	curved curb. 26.	2 25	58 50	1 69	937 51	334 56	1,272 07		Thomas MacElwee	Joseph Perna	Oct. 20
								house conns. 330.	60	180 00								
								deduct		7 50								

Length and Cost of Branch Sewers Built During the Year 1911—Continued.

Location.	Size.	Length in feet.	Inlets.			Manholes.		Wellholes, curved curb, house connections, etc.			Cost per foot.	Payment.			Excess bills and balances.	Inspectors.	Contractors.	Date of final estimate.
			Size.	No. built.	Cost each.	No. built.	Cost each.	No. built.	Per foot.	Total cost.		In assessment bills.	In City warrants.	Total cost.				
Wyoming avenue (north side), from A street to B street	2 ft. 6 ins. by 1 ft. 8 ins.	503.				4	$50 00				$1 84	$735 00	$390 52	$1,125 52		C. A. Crossin	Patrick Durkin	Nov. 6
Woodstock street, from Tasker st. to Dickinson st.	2 ft. 6 ins. by 1 ft. 8 ins.	443.				3	50 00	house cons. 234.	$0 60	$140 40	2 08	1,126 76	102 08	1,228 84		John P. Flood	William A. Ryan	Nov. 27
	12 in. v. p.	17.									1 00							
William st., from Frankford avenue to Amber street	3 ft. by 2 ft.	478.	3	2	$75 00	3	50 00	curved curb. 24.83	2 25	55 87	1 45	1,123 29	247 58	1,370 87		John Lloyd	Joseph Conklin	Nov. 27
	15 in. vit. pipe	37.				1	60 00	house cons. 351.	60	210 60	1 15							
	15 in. v. p.	7.									1 25							
Wyoming avenue, (south side), from A street to B street	3 ft. by 2 ft. vit. sh. br. inv.	60.				4	50 00	rubble masonry. 1.	4 50	4 50	1 94	735 00	515 60	1,250 60		David J. Sweeney	Peter Ellis	Dec. 30
	2 ft. 6 ins by 1 ft. 8 ins.	530.									1 74							
	15 in. v. p.	6.									1 25							

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